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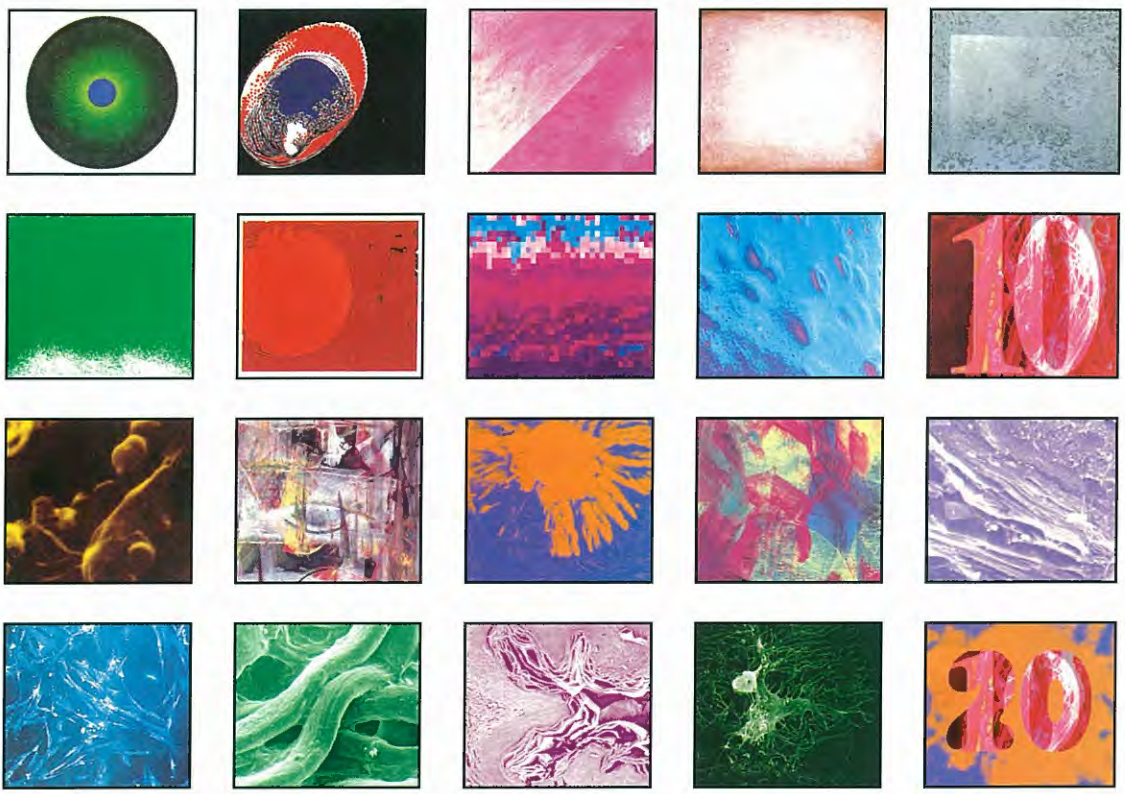

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NUTRI-COSME-CEUTICALS
A Challenge for the future ?
International Multidisciplinary Symposium
Rome 6-8 February 2002

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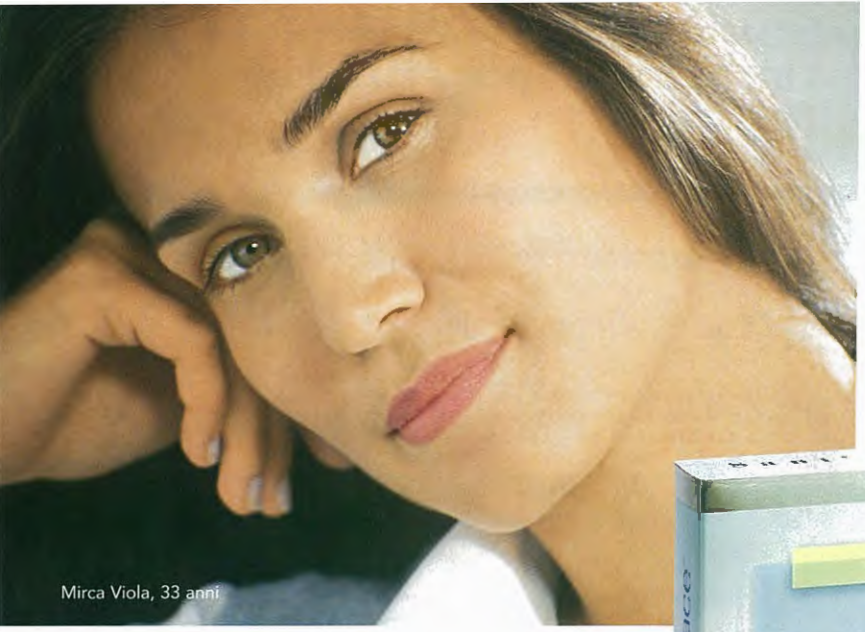

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The **JOURNAL OF APPLIED COSMETOLOGY** is an international journal devoted to publisching original papers, reviews and other material which represent a useful contribution to research on the skin and on cosmetics.
It is aimed at cosmetic chemists, dermatologists, microbiologists, pharmacists, experimental biologists, toxicologists, plastic surgeons, and all other scientists working on produets which will come into contact with the skin and its appendages.
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Special Issue Dedicated to

VI World Congress
Of the
International Society of Cosmetic Dermatology

NUTRI-COSME-CEUTICALS:
A CHALLENGE FOR THE FUTURE?

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International Society of Cosmetic Dermatology

Application & Research

International Society of Cosmetic Dermatology

International Multidisciplinary Symposium

Nutri-Cosme-Ceuticals

A Challenge for the Future ?

Rome 2002

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FINAL PROGRAMME

Under the High Patronage of
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XIX

Welcome from the Organizing Committee

This international and multidisciplinary Symposium organized to celebrate the XX anniversary of the scientific activity of the non-profit International Society of Cosmetic Dermatology, intends to give a complete picture of the progress had over the last twenty years in skin physio-biological activity and in the manufacturing of innovative cosmetics and dietary supplements useful to improve people's health and appearance, and to prevent possible pathologies in the early age, in the middle age and in aged people.

For the first time participants could assist to scientific discussions presented by international experts in Physiology and Biology involved in the basic studies on skin and its appendages; by specialized technicians in Cosmetic Chemistry and Dietetics involved in the setting-up and production of cosmetics and functional food; by Dermatologists, Gynecologists, and Dietologists who daily advice and prescribe to their patients these categories of products.

Primary aim of this Symposium is to clarify the meaning of the words nutri/nutra-ceuticals and cosmeceuticals.

Is really necessary to use this terminology which tries to make a closer connection between the cosmetic/dietary and a product carefully controlled such is the drug?

Probably it is not, but nowadays these terminology are currently used and it is important to define them correctly in order to avoid the consumer misunderstanding.

According to what recently affirmed by the well known dermatologist, Prof. Kligman from Philadelphia "whether one is pro or non, the term cosmeceutical has permanently entered the vocabulary of skin care science".

Similarly it seems we can say that the word nutri/nutra-ceutical has entered in the common use with the aim to better define the category of the food with health benefits, the so called "functional food".

The Symposium will give proper room also to dietary and cosmetic aspects in Alternative and Complementary Medicine, such as Chinese Medicine and Indian Ayurvedic Medicine.

Aesthetic Medicine using medical-surgical devices, such as "filler", or methodologies, such as ionophoresis, ozone therapy or mesotherapy and natural products based on mineral waters and therapeutic muds of thermal origin, will be widely treated.

These topics will try to highlight all the problems concerning the activity performed by the different active principles and by the relevant carriers used for the setting-up of the finished product. The activity performed by both cosmetic and dietary products is, in fact, always in dependence of the chemical physical formulation of the active principles selected, which will be described by the formulators working for the raw materials industries, and, of course, in dependence of the carriers used in the setting-up of the finished product described by the chemists and technicians working for the cosmetics and dietetics industries.

Their real efficacy and the eventual undesirable side effects when coming into contact with the skin areas or the mucous membranes, will be investigated by a huge number of biologists, physiologists and pharmacologists involved in the absorption through the different biologic membranes.

The medical community, comparing their opinions with their colleagues chemists, biologists and physiologists, will discuss why to prescribe and how to use these products.

The Symposium will consists of five main sessions:

1. The current knowledge on skin, hair, nail and mucous membranes
2. Percutaneous and mucous absorption: the new control-release carriers
3. Functional food and cosme-ceuticals needs at different age: the-state-of-the-art
4. Botanicals, sea salt and mud in Alternative and Complementary Medicine
5. Innovative medical devices and nutri-cosme-ceuticals in Aesthetic Medicine: present and future market

For the high scientific level and originality of the topics treated in the different sessions, we would like to invite you to actively participate at this Symposium contributing to its success
The meeting committee

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Welcome from the President of the ISCD

Dear colleagues and participants:

On behalf of the Board of the International Society of Cosmetic Dermatology I wish to invite you to participate at the forthcoming Congress on Nutri-cosme-ceutical: a challenge for the future? to be held in Rome next year. A series of experts - physicians, pharmacologists, chemists and other scientists - from Universities and Laboratories working on this field will present reviews and recent findings, thus expanding our knowledge on these upcoming issues.
The Society promotes interdisciplinary interchange of ideas and welcomes all contributions related to this new era of scientific research and development. Also, new products from the pipelines of specialized groups will be presented and discussed by this opportunity.
I do hope that this conference in the historic city of Rome will be successful and will also meet all necessary requirements for relaxation and entertainment of the participants.

I welcome you all.
C. E. Orfanos, M. D.
President of the ISCD

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Welcome to Rome

With the improvement of the average lifestyle during the last fifty years, no one wants to look or be old anymore. That is what Prof. Klingmann said during our first I.S.C.D. congress, back in 1985: "what is beautiful is good. People assume that attractive people have better personalities and more favorable attributes. Attractiveness in the elderly is really equated with youthfulness. Facial appearance, in fact, is one of the most powerful factors influencing interaction in many situations".
Therefore the modern cosmetic is to ameliorate and enhance the more positive aspects of appearance, while the aim of diet supplements and healthy nutrition is to improve our general well-being.
As Kligman said: "Cosmetics and diet supplements has to be viewed as therapeutic interventions to help a person feel better as well as look better".
Many researcher have shown in fact, that not only skin cosmetics but also cover and beautifying cosmetics, such as lipsticks or eye-shadows, have a psychotherapeutic value and can be used as a vehicle to promote health care and general psychological and social being.
After about 17 years, this congress aims at underlining the great progress achieved in the cosmetic as well as in the diet supplements field.
Today, dietary supplements and cosmetic products on the market can provide an important contribution to our looks and our health, both of the skin and the whole organism.
It is just thanks to this progress that we are trying to join a real efficacy of cosmetic products to healthy food, dietetic products, together with the efficacy of drugs, by using two words: cosmeceuticals and nutriceuticals.
Cosmetics and diet supplements are really efficacious? Their efficacy can be seen on the skin and over the body by the use of methods of control scientifically correct and validated.
Do European Laws adequately protect consumers? And what are the possible improvements to provide to legislative dispositions in the presence of an ever-increasing technical progress?
This theme will be discussed in the round table: the international rules in the cosmetic and diet field: status quo and future perspectives, attended by all the official organs of control for the safeguard of the consumers.
We will try to provide an answer to all these interrogatives in the sessions of tbe congress and the round table.

P. Morganti
ISCD Secretary General

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PROGRAMME OUTLINE

Tuesday February 5					
Hall A **CNR** **P.le Aldo Moro**	**8:30 -10:45**	**11:15 -13:45**	**13:45 -14:30**	**14:30 – 17:00**	**18:30-20:00**
				Opening Registration	
Wednesday February 6					
Hall A **CNR** **P.le Aldo Moro**	Interdisciplinary Plenary Lectures & Poster Viewing Skin Structure Function & Nutri-Cosme-Ceuticals *The Lipids*	Interdisciplinary Plenary Lectures & Free Communications Skin Structure Function & Nutri-Cosme-Ceuticals *The Antioxidant Network*	**Brunch** **&** **Poster Viewing**	Interdisciplinary Plenary Lectures & Workshops The Color Network	**Opening Addresses** **&** **Welcome Reception** Visit to the Museum **"Medical Secrets"** Lungotevere in Sassia, 3 (Santo Spirito Hospital)
Hall B **CNR**	Interdisciplinary Plenary Lectures & Free Communication Innovative Medical Devices & Nutri-Cosmeceuticals In Aesthetic Medicine: Present And Future *The Scar Management*	Interdisciplinary Plenary Lectures & Free Communication Innovative Medical Devices & Nutri-Cosmeceuticals In Aesthetic Medicine: Present And Future *Skin Aging Treatment: An Up To Date*	**Brunch** **&** **Poster Viewing**	Sponsored Workshop Advance In Cosmetic Dermatology & Aesthetic Medicine 1. Peeling And Filling: A Face To Face Of New Techniques 2. Cell Bio-stimulation: An innovative Approach To Treat Wrinkles & Stretch Marks (Mavi Cosmetics)	
Hall C **Chimica Farmaceutica**			**Brunch** **&** **Poster Viewing**	Interdisciplinary Plenary Lectures & Free Communication Innovative Medical Devices & Nutri-Cosmeceuticals In Aesthetic Medicine: Present And Future Innovative Nutri-Cosme-Ceuticals	
Thursday February 7					
Hall A **CNR**	Interdisciplinary Plenary Lectures & Poster Viewing Mucous Membranes Structure And Function & *Nutri-Cosme-Ceuticals*	Interdisciplinary Plenary Lectures Percutaneous And Mucous Absorption & *Nutri- Cosme-Ceuticals*	**Brunch** **&** **Poster Viewing**	Interdisciplinary Plenary Lectures Hair And Nail Function & *Nutri-Cosme-Ceuticals*	**20:00** **Gala Dinner**
Hall B **CNR**	Interdisciplinary Plenary Lectures The New Tendencies In Skin Treatment *Raw Materials And Cosmetic Activity*	Interdisciplinary Plenary Lectures The New Tendencies In Skin Treatment	**Brunch** **&** **Poster Viewing**	Round Table The International Rules In The Cosmetic And Dietetic Field: Status Quo And Future Perspectives	
Thursday February 8					
Hall A **CNR**	Interdisciplinary Plenary Lectures Botanicals, Sea Salt And Mud In Alternative And Complementary Medicine	Interdisciplinary Plenary Lectures Botanicals, Sea Salt And Mud In Alternative And Complementary Medicine		**14:00-14:30** **Closing Ceremony**	
Hall B **CNR**	Interdisciplinary Plenary Lectures *New Tendencies In Functional Food*	Interdisciplinary Plenary Lectures New Active Compounds *For Innovative Cosmeceuticals*			

GENERAL INFORMATION

MAIN SESSIONS
Lectures of special interest are scheduled on February 6, 7 and 8 until 14.00.
Outstanding scientists internationally well-known have been selected for those lectures.

ROUND TABLE
There will be special round tables on topics of special interest.

FREE COMMUNICATIONS
All authors have been informed of details concerning their presentation. The schedule time of each Free communication is 7 minutes, including discussion.

POSTER SESSIONS
Posters must be displayed on pannels on days February 6-7-8, 2002.
The posters cannot be removed until February 8 not before 12.00
The authors should be present in the exhibition area from 8.30 to 9.30 and from 16.00 to 17.00.

INFORMATION FOR AUTHORS
Abstracts will be included in the abstract book, only if the registration fee for at least one of the authors have been remitted and if the abstract form has been sent before 15 September, 2001.

ENQUIRIES
All scientific enquiries about the congress should be addressed to the scientific secretariat desk.

SLIDES
All slides frames should measure 5x5 cm (2x2 inches). Speakers will have the opportunity to view their slides prior to presentation. Test projectors will be available in the Slide Centre. Videobeam is available in tbe Slide Centre.

OFFICIAL LANGUAGE
The official language of the meeting is English. Simultaneous translation from English to Italian is available in the auditorium.

PRE-REGISTRATIONS
Pre-registrations will be possible on Tuesday February 5, 2002, from 14.30 to 17.00 in Hall-A of the C.N.R. P.zzale Aldo Moro, 7, Rome - Italy.

ATTENDANCE CERTIFICATE

The participants will collect their certificate on site on request at the Scientific Secretariat.

STANDS

The stands can be mounted from Tuesday February 5, 2002 and dismounted from Friday February 8 evening from 15.00 pm.

BADGES AND IDENTIFICATION

Registration badges will be used during the congress. For identification purposed and admission to the session halls, participants are requested to wear their badges, which will be given to them upon registration.
Admission to the congress site will not be allowed without bagde identification.

International Society of Cosmetic Dermatology

Membership Information

The International Society of Cosmetic Dermatology, a non-profit association, was founded in 1982 to fulfill some very special needs. Its purpose is to encourage a more continuous and stable exchange among the medical community in general, dermatologists in particular and cosmetic chemist, pharmacologists, physiologists, toxicologists and experts of all other disciplines that may be related to Cosmetic Dermatology.
The ISCD organizes a meeting at varied locations around the world every two years.
Official languages is English.
The official publication of the ISCD is the "Journal of Applied Cosmetology" published in English.

PUBLISHED PROCEDEENGS
Vol. 1 – A New Look at Old Skin: a challenge to Cosmetology (1985)
Vol. 2 – Every Day Problems in Dermatology: the Cosmetic Connection (1987)

APPLICATION FOR MEMBERSHIP

Name:_____
(first) *(middle)* *(last)* *(title)*

Affiliation:_____

Address:_____

_____

_____

(please be certain to print address exactly as it must be written for international mail! This address will also be used for preparing the Society roster.)

Special interests and expertise: _____

Membership category desired: _____

Membership categories include:

Society Fellow
Advanced academic degree in relevant field, or equivalent life experience

Society Member
Baccalaureate degree and relevant or equivalent life experience

Society Affiliate
All interested persons not otherwise qualified

Member in Training
Application must be accompanied by a letter of certification on the letterhead of, and signed by, a Fellow of the Society

All categories of membership shall enjoy all the privileges of membership afforded by the Society:
The stipulated exceptions are:
Only Fellows may hold any office
Only Fellows and Members may vote
Affiliates may neither hold office nor vote
Members in training may not hold office, vote, nor qualify for special Journal rates.

Dues Schedule:
Fellows.....$US 150
Members.....$US 120
Affiliates.....$US 80
Member in training.....$US 40

You must apply for the highest level of membership for which you may qualify

There are neither corporate nor other types of group or consolidated memberships. Each individual must apply, and be approved, for membership. Assignment to membership categories is solely at the discretion of the Society.

Dues include your Journal subscription. Corporate, institutional library and non-member rates will be quoted upon application.

Completed application form, including annual payment for your membership category and for the Journal, is to be mailed to:

International Society of Cosmetic Dermatology
Executive Office: Via Innocenzo XI, 41 – 00165 Rome -Italy

All bank checks must be in $US equivalent as prevailing upon the date of issue of the check. The date of issue must not be more than 30 days prior to the date of receipt.

AMOUNT PAID:

DUES _____
JOURNAL _____
TOTAL _____

SCIENTIFIC PROGRAMME

DAY BY DAY

SESSION	I	
	SKIN STRUCTURE AND FUNCTION & NUTRI-COSME-CEUTICALS	
	A) THE LIPIDS	
	CHAIRMEN: *F. Kemper (D), R. Lauro (I), P. Morganti (I)*	
8.30	**Opening Keynotes**	
8.35	**Epidermal & Dermal protein and enzymes: what's new** *B. Guarneri, M. Vaccaro, F. Guarneri (I)*	*p. 3*
8.50	**Molecular organization and behavior of skin barrier lipids** *D.J. Moore (USA)*	*p. 4*
9.05	**The mechanism and Modern Therapy for vitiligo.** *Y. Kee Park (Korea)*	*p. 5*
9.20	**Functional requirements of cosmetic products in young, middle aged and aged people.** *J. Kim (Korea)*	*p. 6*
9.35	**The Mediterranean Diet for a better quality of life. A critical Survey** *B. Berra (I)*	*p. 7*
9.50	**Summary and comments** *F. Kemper (D)*	
10.20	**Discussion**	
10.50	**Coffee Break & Poster Viewing**	
	B) THE ANTIOXIDANT NETWORK	
	CHAIRMEN: *S. Manfredini (I), M. Picardo (I)*	
11.15	**The cutaneous signaling events induced by ROS** *S. Manfredini, S. Vertuani, E. Durini (I)*	*p. 8*
11.30	**Antioxidant defense system in skin** *U. Cornelli (I)*	*p. 9*
11.45	**Access to the SPF testing method for the Korean skin** *H. Min, S. Lee, T. Kwak, S. Kang, S. Choi, K. Sohn, Y. Park, J. Youn (K)*	*p. 10*
12.00	**Suuscreen, suntan, and anti-sunburn preparations today.** *P.U.Giacomoni (USA)*	*p. 11*
12.15	**Prevention/Repair creams: what's new.** *M.Froschle (CH)*	*p. 12*

12.30	**Lutein: an update of its benefits in human health** *A.A. Rodrigues (P)*	*p. 13*
12.45	**Lutein: natural bioactive antioxidant for eye and skin health** *E.J. Krieger (USA)*	*p. 14*
13.00	**Cutaneous Aging And Photoaging** *M. Sirchi, C. Marchetti (I)*	*p. 15*
13.15	**Discussion**	
13.45	**Lunch & Poster viewing**	

C) THE COLOR NETWORK

CHAIRMEN: *Y. K. Park (K), G. Prota (I), G. Vena (I)*

14.30	**Eumelanins and Photomelanins in Human hair: a vis a vis of their Biochemistry and Functional Significance** *G. Prota (I)*	*p. 16*
14.45	**Skin Protection properties of the compatible solute RonaCare™ Ectoin** *J. Bunger, N. Beyer (D)*	*p. 17*
15.00	**Contact dyschromias** *G. Angelini (I)*	*p. 18*
15.15	**Skin care ingredients and their application to decorative products with skin feel properties.** *M.L.Schlossmann (USA)*	*p. 19*
15.30	**Cosmetic pigments with special effect. New trends.** *L. Heider (D)*	*p.20*
15.45	**Zinc nutritive and skin.** *G.Vena , N. Cassano (I)*	*p. 21*
16.00	**Summary and comments** *B. Giannotti (I)*	
16.30/17.00	**Discussion and session closure**	
18.30/20.00	**Welcome reception**	

SESSION	II	
	INNOVATIVE MEDICAL DEVICES & NUTRI-COSME-CEUTICALS IN AESTHETIC MEDICINE: PRESENT AND FUTURE	
	A) THE SCAR MANAGEMENT	
	CHAIRMEN: *M. Harahap (Indo), L. Rusciani (I), A. Tulli (I)*	
8.30	**The scar management** *M. Harahap (Indonesia)*	*p. 22*
8.45	**Laser Therapy: Keeping pace with time** *C. Ponce-Luna (Philippines)*	*p. 23*
9.00	**Laser revision of scars: the-state-of –the art.** *G. Oskarbsi (I)*	*p. 24*
9.15	**A Special Pill-Mask To Re-Hydrate The Skin Affected By Atopic Dermatitis** *P. Palombo, P. Morganti, G.Fabrizi, F.Guarneri, F. Valenzano, X. Z. Feng (I)*	*p. 25*
9.30	**New procedures for the treatment of the skin-face black spots and scars.** *L. Rusciani, L. Sinagra, A. Rusciani (I)*	*p. 25*
9.45	**A new therapeutic approach for scars: antihomotoxix drugs** *N. Dell'Edera (I)*	*p. 27*
10.00	**Effectiveness of flash lamp- pumped pulsed-dye laser treatment of port-wine stains with the: Our experience** *E. Fulgione, V. Landi, V. Fulgione, B. Torrone (I)*	*p. 28*
10.07	**Effectiveness and Clinical Tolerability of Tazarotene 0,1% gel vs Adapalene 0,1% gel in treatment of mild to moderate acne.** *E. Fulgione, V. Landi, V. Fulgione, B. Torrone (I)*	*p. 29*
10.14	**Discussion**	
10.45	**Coffee break**	
	B) NEW SKIN AGEING TREATMENT: AN UP TO DATE	
	CHAIRMEN: *L. Amerio (I), R. Bracaglia (I), P. Palombo (I)*	
11.15	**Cosmetics: The Past And The Future** *P. Morganti G. Fabrizi and C. Jacobson (I)*	*p. 30*

February 6, 2002 — ROOM C

Fac. Chimica Farmaceutica

SESSION II

INNOVATIVE MEDICAL DEVICES & NUTRI-COSME-CEUTICALS IN AESTHETIC MEDICINE: PRESENT AND FUTURE

C) INNOVATIVE NUTRI-COSME-CEUTICALS

CHAIRMEN: *G. Biagini (I), A. Garcovich (I), B. James (USA)*

February 7, 2002 CNR - ROOM A

SESSION IV

PERCUTANEOUS AND MUCOUS ABSORPTION & NUTRI-COSME-CEUTICALS

CHAIRMEN: *B. Guarneri (I), H.I. Maibach (USA), P. Santoianni (I)*

February 7, 2002 CNR - ROOM A

SESSION V

HAIR AND NAIL STRUCTURE AND FUNCTION & NUTRI-COSME-CEUTICALS

CHAIRMEN: *S. Calvieri (I), A. Tosti (I), C. Zouboulis (D)*

February 7, 2002 — CNR - ROOM B

SESSION VI

THE NEW TENDENCIES IN SKIN TREATMENT

RAW MATERIALS AND COSMETIC ACTIVITY

CHAIRMEN: *L. Andreassi (I), C. Gelmetti (I), D. Rascovich (I)*

CHAIRMEN: *G. Fabrizi (I), C. Jacobson (USA), M. Lomuto (I)*

11.15	**Evaluation of skin surface lipids during thermal theraphy** *P. P. Di Russo, E. Cervadoro, G. Agostini, C. Pedrinazzi (I)* **not received**	
11.30	**New trends in the skin care market.** *G.Fabrizi, P. Morganti (I)*	*p. 74*
11.45	**The skin conditioning activity of petrolatum, mineral oil, and specialty hydrocarbon gels** *D. S. Morrison (USA)*	*p. 75*
12.00	**Endocosmetic treatment of the skin** *M. Ceccarelli (I)*	*p. 76*
12.15	**The Enzyme Catalase To Prevent Skin Damages Caused By Physical Stress** *S. Simonetti, M. Tomassini, S. Gizzi, A. Micheletti, S. Rufini (I)*	*p. 77*
12.30	**A new therapeutic approach in the treatment of photoaging: our experience** *E. Fulgione, V. Landi, V. Fulgione, B. Torrone (I)*	*p. 78*
12.37	**Photodynamic therapy (PDT) with topical 5 aminolaevulinic acid (ALA) vs cryotherapy in treatment of recalcitrant foot and hand warts** *E. Fulgione, V. Landi, V. Fulgione, B. Torrone (I)*	*p. 79*
12.44	**Discussion**	
13.15	**Lunch & Visit the exhibition**	

ROUND TABLE — CNR - ROOM B

THE INTERNATIONAL RULES IN THE COSMETIC AND DIETETIC FIELD: STATUS QUO AND FUTURE PERSPECTIVES

14.30/17.00

CHAIRMEN: *F. Kemper (D), P. Morganti (I), Sen. R. Pedrizzi (I)*

1.	**Introductory Remarks** *F. Kemper (D), P. Morganti (I) and R. Pedrizzi (I)*
2.	**Status quo of cosmetics in Europe** *M. Colella (Italian Ministry of Health) (I)*
3.	**Status quo of diet supplements in Europe** *L. Guidarelli (Italian Ministry of Health) (I)*
4.	**New medical devices and cosmetics: is there a real connection?** *L. Gramiccioni (Italian National Institute of Health) (I)*
5.	**Chemical control of actives: problems and proposals of solution for cosmetics and diet supplements** *L. Gagliardi (Italian National Institute of Health) (I)*

6.	**Worldwide future perspectives in diet supplements** *P. Aureli (Italian National Institute of Health) (I)*	
7.	**Perspectives in cosmetic vigilance** *G. Salvatore (Italian National Institute of Health) (I)*	
8.	**The advertisement in the cosmetic and dietetic field: to protect the customer** *G. Bronzini (Italian Competition Authority) (I)*	
9.	**Dietary supplements : present day conditions. Prospects** *G. Leopardi (President of FOFI) (I)*	
17.00/17.30	**Discussion and comments**	
20.00	**Gala Dinner**	

February 8, 2002 — CNR - ROOM A

SESSION	**VII**	
	BOTANICALS, SEA SALT AND MUD IN ALTERNATIVE AND COMPLEMENTARY MEDICINE CHAIRMEN: *G. Borroni (I), J.P. Marty (F), G. Trevisan (I)*	
8.30	**Herbal Medicine for the skin. Their chemistry and effects on skin and mucous membranes** *A. Dweck (UK)*	*p. 83*
8.45	**The pharmacological activities of the Dead Sea water** *R. Wolf (Israel)*	*p. 84*
9.00	**Education in cosmetic dermatology and medical aesthetics: the advancements in Italy** *R. Lauro (I)*	*p. 85*
9.15	**Tibetan Medicine Tested By Science: A Botanical Treatment For Peripheral Vascular Disease (Pvd)** *V. Badmaev (USA)*	*p. 87*
9.30	**The scientific basis of homeopathy: efficacy and cost-effectiveness.** *F. Negro (I)*	*p. 88*
9.45	**The use of TAILA and medicated TAILA in Ayurvedic Medicine** *T. De Monte (I)*	*p. 89*
10.00	**Ayurveda and Nutrition** *A. Morandi (I)*	*p. 90*
10.15	**Discussion**	
10.30	**Coffee & Visit the exhibition**	

CHAIRMEN: *C. Camplone (I), G. Salvatore (I)*

11.15	**Botanical in Cosmetics: a critical discussion** *G. Salvatore (I)*	*p. 91*
11.30	**Botanicals for innovative cosmenutricenticals** *A. Cristoni, F. di Pierro (I)*	*p. 92*
11.45	**Aromatherapy and aromachology: what's the difference.** *G. Dodd (UK)* **not received**	
12.00	**Significance and role of aromatherapy** *C. Scesa (I)*	*p. 93*
12.15	**Liposilt Black – A Peloid With Unique Activity Upon Skin Application** *S. Greenberg, N. Dayan (USA)*	*p. 94*
12.30	**Role of Shiatsu for a better living** *F. Palombini (I)*	*p. 95*
12.45	**Olive oil as basic component in nutrition** *P. Viola (I)*	*p. 96*
13.00	**Discussion**	
14.30	**Closing lecture**	

February 8, 2002 — CNR - ROOM B

SESSION VIII

NEW TENDENCIES IN FUNCTIONAL FOOD

CHAIRMEN: *O. Carlesimo (I), M. Lospalluti (I)*

8.30	**OGM Food. Status Quo and perspectives.** *P. Picotto (I)* **not received**	
8.45	**Safety of genetically modified food: toxicological aspects** *E. Dogliotti (I)*	*p. 97*
9.00	**The Italian Bergamot: a D.O.P. Calabrian essence for beauty and well being** *P. Morganti (I)*	*p. 98*
9.15	**Tbe bioprotective effects of carotenoids. A literature study.** *J. Gerritsen, Y. Cheung, F. Crum, J. Kamphuis (The Netherlands)*	*p. 99*
9.30	**Effectiveness of serenoa repens on hair growth** *C. Fasulo, L. Bosco, P. Morganti (I)*	*p. 100*
9.45	**The activity of a new functional food on androgenetic alopecia** *G. Argenziano, E. Grimaldi, M.A. Baldassarre (I)*	*p. 101*
10.00	**Health promoting effect of fruit and vegetables consumption: mechanism of action in humans.** *M. Serafini, G. Maiani (I)* **not received**	

POSTER SESSION

ABSTRACTS

Session I **CNR Hall A**

Interdisciplinary Plenary Lectures & Poster Viewing
Skin Structure Function & Nutri-Cosme-Ceuticals

Session II **CNR Hall B**

Interdisciplinary Plenary Lectures & Free Communication
Innovative Medical Devices & Nutri-Cosmeceuticals In Aesthetic Medicine:
Present And Future

Chimica Farmaceutica Hall C

Sponsored Workshop **CNR Hall B**

Advance In Cosmetic Dermatology and Aesthetic Medicine
Peeling and filling: A Face To Face of new techniques
Cell Bio-stimulation: An innovative Approach To Treat Wrinkles & Stretch Marks

FEBRUARY 6

Epidermal & Dermal Protein And Enzymes: What's New

B.Guarneri, M.Vaccaro, F. Guarneri
Institute of Dermatology - University of Messina
Messina - ITALY

Detailed analysis and systematical classification of the proteins synthesized in the various organs, along with their functions, their mechanism of action and their reciprocal interactions, have always been an objective of the medical science. But the research in this field has really developed only in the last decades, thanks to the concurrence of several factors: the discovery of new fundamental techniques of clonation and amplification, the increase of the power of calculators, the collaboration between specialists of different disciplines. Starting some years ago, it has produced a large database, containing amino acid sequences and information regarding thousands of proteins. The available data on the human set of proteins show the variety of the metabolic activities in the skin. The search engine "Entrez Protein" of the National Center of Biotechnology Information reports approximately 1400 different proteins synthesized by cutaneous cells - a very high number, although some of these are found associated only to genetic alterations or tumors. This high number of proteins is because of the variety of skin functions. The skin, main interface between the organism and the "outside world", is a physical barrier. For this reason, it needs a large set of structural proteins, capable of assuring elasticity and firmness, impermeability to micro-organisms and potentially noxious chemical agents and selective permeability to other exogenous and endogenous substances. But skin is not an inert barrier: it performs its function also by mechanisms of active defense, aimed at eliminating potentially dangerous agents. These mechanisms require the synthesis of a wide spectrum of proteins, some acting directly (lytic enzymes), some acting as a part of intra- and intercellular metabolic processes that allow cells to achieve complex activities (like phagocytosis). Moreover, like all biologic interface structures, skin is used to acquire "information" from the external environment, useful for the activation of proper reactions. Thus, cutaneous cells are able to produce proteins fit for receiving different "signals" from the environment, elaborating, and transducting them. For example, an uninterrupted exchange of biochemical signals occurs between skin cells and the immune system, both in physiological conditions and in the event of an alteration of the barrier function, and this plays a remarkable role in the homeostasis of organic defenses.
In this short report, we will try to show, as completely as possible, the "state of the art" of the research on some proteins involved in the basic functions of cutaneous cells (adhesion, proliferation, immunoregulation). We will present studies by our group both in normal skin and in the course of different skin pathologies characterized by altered cell proliferation and/or altered immunoregulation.

Molecular Organization And Behavior Of Skin Barrier Lipids

David J. Moore
Unilever Research US, Edgewater, NJ 07020

The stratum corneum lipid matrix plays an essential role in skin barrier function and hence, human health. A complete understanding of barrier physiology requires knowledge of both the biochemical processes and molecular lipid organization of the outer epidermis. One approach to understanding barrier lipid organization is to investigate the biophysical properties of specific lipid models of the stratum corneum. This presentation will discuss our recent biophysical spectroscopy studies of the major ceramide species of stratum corneum. These studies illustrate the importance of both lipid chain behavior and headgroup hydrogen bonding interactions to the unique biological properties of the extracellular lipid matrix of the skin barrier. The distinct molecular behavior of specific ceramide species in these model systems will be discussed in terms of its importance to lipid organization in the skin barrier and potential contribution to barrier function, and hence, skin health.

The Mechanism and Modern Therapy for Vitiligo

Yoon-Kee Park, M.D.
Department of Dermatology
Yonsei University Medical College
Seoul, Korea

Vitiligo is an idiopathic, acquired depigmentary disorder of skin and hair characterized by ivory-white colored macules of different sizes and shapes with family history.
Cosmetic and psychological distress arising from depigmentation of the skin may cause disruption of normal social life especially in colored people. The etiology of vitiligo is unknown, but there are several hypothesis that have been put forward. Among these hypothesis the autoimmune theory is the most popular one explaining the pathogenesis of vitiligo.
This study was conducted to identify and characterize the vitiligo antigens defined by antibodies in patients with vitiligo, and to examine their specificity and changes of antibodies after treatment using immunofluorescence, ELISA and immunoblotting analysis.
We suggest that the sera of vitiligo patients have autoantibodies mostly directed to the melanocyte surface antigen and that this antigen may play a role in the development or improvement of vitiligo.
There are several therapeutic modalities for vitiligo because this disease is very difficult to treat successfully. The primary goal of vitiligo therapy is to be one color again, preferably their constitutive skin color. Therapy can be devided into two groups:
Medical therapy include corticosteroid (topical or systemic), phototherapy (8-MOP, 5-MOP) and narrow band UVB phototherapy.
Surgical treatments include autologous suction blister grafts, autologous epidermal graft, thin split skin graft and melanocyte transplants.

Functional requirements of cosmetic products in young, middle aged and aged people

Dr. Jong-Il Kim
Pacific Corporation

At 21st century, according as accelerating globalization, there happen many changes in cosmetic trends. First of all, the requirements for cosmetics of teen-agers and silver age people get to increase the number of cosmetic users ; the needs for keeping health against harmful environments increase; life environment and life style of women come to diversify. And for cosmetics, people want to make up for both functional point and sensorial point. We have investigated the skin agony of Korean women and studied the change of skin according to intrinsic aging and photoaging. In case of Korean women, the first expected function of cosmetics is shown to be whitening and anti-aging. As for whitening, because many people trust that skin tone dominate one's facial feature, they demand not simply protect UV and pigmentation but remove previous pigments. As well, according to aging, many people come to count much pigmentation as prime agony of skin, especially women under ages 25~35, when they have experience in giving birth. The anti-aging function of cosmetics is no less than whitening, as the age increases, intrinsic aging and photoaging are combined and accelerated, result in increase of wrinkle and pigmentation, many cutaneous changes (thinning and flattening of epidermis, increase of solar elastosis, decrease of collagen, decrease of the blood vessel number and size, etc.). So, the demand for suppression of photoaging is widely shown over all ages. In young aged people, the demands for controlling stratum corneum, pores and glossy skin are major ; in middle aged people, the major agony of skin is pigmentation (freckles, flaw): in old aged people, demands for improvement of wrinkle and hyperpigmented macules are major. As the age increases, or as the dryness becomes more severe, they prefer more nutritious sensory texture (more thickness, moisturizing, oily, smooth..). In conclusion, the development of cosmetic active ingredients should meet the demands of consumers, the study of skin and hormone should be activated because the skin change of women is under the influence of aging, environmental changeas well as hormonal change.

The Mediterranean Diet for a better quality of life. A critical survey.

B. Berra
Institute of General Physiology and Biochemistry, School of Pharmacy, University of Milan.

The results of the classic international study launched by Keys in the '50s were, at the beginning, interpreted as indicating that the Mediterranean population has a lower incidence of CHD simply because the consumed diet was low in saturated lipids. In the last decade scientific researchers in the fields of clinical medicine, epidemiology, biochemistry, cellular and molecular biology as provided converging evidence on the health benefits of the Mediterranean Diet (MD) and as set a solid biological foundation for understanding the mechanisms underlying these benefits.
These researches arose from the observations that Mediterranean populations had a lower incidence not only of CHD but also of other important causes of morbidity and mortality.
What might be a definition of MD? According with some AA, MD can be defined as "the dietary pattern found in olive-growing areas of the Mediterranean regions in the late '50s and early '60s, when the consequences of World War II where overcome, but the fast food culture had not yet invaded the area". What are the features of the MD? In general high monounsaturated-to saturated lipid ratio, high consumption of legumes, cereals (including bread), fruits, vegetables, low consumption of meat and meat products, moderate consumption of ethanol and of milk and dairy products. But when these concepts are "translated" e.g. in terms of lipid intake, this could be high (around 40% of total calories in Greece) or moderate (30% in Italy). Moreover, according to the local traditions there are many "variants" of the MD; the Italian one is characterised by higher consumption of pasta, whereas in Spain fish consumption is particularly high. In the traditional Greek diet, foods include large quantities of whole grain bread, and cooked foods and salads (in which legumes and vegetables are consumed in large amounts) rich in olive oil. Intake of milk is moderate, but consumption of cheese and, to a lesser extent, yogurt is high; feta cheese is regularly added to most salads and accompanies vegetables stews. Meat used to be expensive and rarely consumed, whereas fish consumption was a function of proximity of the see. One common feature of different variant is that ethanol was most derived from wine, generally consumed in moderation (with some exceptions) and almost always during meals. A part from these discrepancies MD represented a strong message, which was also developed in attractive picture, for populations like the American one, where many dominant pathologies are linked to nutritional habits. However the so called Diet Pyramid (s) are continuously modified and this is a confounding aspect for the general population; moreover many important and powerful companies have taken possession of the MD distorting its basic concepts so that many people is now convinced that MD is synonymous of "pasta and pizza". In conclusion the MD diet was originated, according to some AA, by a "natural experiment". Today we are well under way to understand and explain what nature has been trying to tell us through the otherwise unexplained good health of the Mediterranean people. The current momentum toward the Mediterranean Diet has solid biological foundation and does not represent a transient fashion or simply a business. What is even more important is that the Mediterranean Diet, in its several variations, can be considered a realistic model of a prudent diet that fits the current understanding of healthy nutrition and can be adopted by modern populations.

The cutaneous signalling events induced by ROS

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Skin is a highly metabolic tissue which possess the largest surface area in the body, and is also a major candidate and target of oxidative stress. Elaborate and diversified antioxidant mechanisms, of both enzymatic and non-enzymatic nature, protect skin from oxidative damage. The structure of skin is quite complex, being composed of several layers, each of which is equipped with its own arsenal of defence molecules, and the various systems differ from each other on the bases of layer's susceptibility to oxidative stress and its function. In particular, human stratum corneum, shows specific antioxidant activity, against oxidative environment injuries, including UV radiation, chemical and biochemical oxidants of exogenous and endogenous origin, air pollution and anaerobic organisms. It is generally agreed that one of the major contributions to skin aging, skin disorders and inflammatory skin diseases, involve a interconnected redox-sensitive pathways, based on reactive oxygen species (ROS). Small variations in the basal level of ROS, play a role not only in the context of damage to biomolecules and cells, but also in inducing more complex responses such as the activation of cellular signalling pathway, culminating in modulated gene expression, as well as posttranslational modification of proteins (i.e. production of HO-1, MMP-1 and MKP-1). Redox sensitive events in the skin involve direct interaction with specific receptor, and/or redox-activation of members of signalling pathways such as protein kinases, protein phosphatases, transcription factor, cytokines, adhesion molecules, and T-lymphocyte receptor. A better comprehension of the mechanisms involved in skin oxidation, and regulation of cell response to antioxidant treatments, would be of help in the development of more powerful pharmaceutical and cosmeceutical antioxidant strategies to prevent or modulate skin disorders.

The antioxidant defence system in skin

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Skin is a barrier that can be aggressed by both external and internal perturbations caused by oxidative stress. The antioxidant defence of the skin is constructed to face these two types of aggressions. The external damage is determined by UV irradiation and by atmospheric pollution. The defence from these agents is mainly accomplished by a barrier of lipids and corneocytes which form the stratum corneum. The oxidation of the lipids of this stratum reduces the efficiency of the barrier causing a more pronounced water loss, and a reduction of the defence against possible infections. Since the enzymatic systems is not efficiently operating in corneocytes, squalene is considered to be the most powerful natural antioxidant in this compartment.
The internal damage is caused mainly by the excessive oxidation of collagen and elastin. Collagen is stabilized by the oxidative deamination of either a lysil or an hydroxylisyl residue, to form a corresponding aldehyde derivative. Elastin is stabilized by the formation of intermolecular cross-links of desmosine and isodesmosine, which are formed by four lysyl residues also. In other terms, for both structures the oxidation of lysyl residues is the main step to form an efficient polymer. However, an excessive oxidation creates a very rigid and fragile polymer, typical of aging. The most efficient antioxidant in this compartment was shown to be beta-carotene.
The third compartment affected by oxidative stress is microcirculation. Vessels determine the exchanges necessary for an adequate nutrition, heat exchange, repair and immune responses. The protection of vessels from oxidative stress needs the presence of a more complete antioxidant system which consists of a Transversal Antioxidant Complex (TAC). This last element is composed of different types of antioxidants with different specific sites of action.

Access To The SPF Testing Method For The Korean Skin

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Sunscreen use is recommended as an important means of reducing the risks of erythema, photocarinogenesis, and photoaging from the harmful UV radiation. Even though marketed sunscreens are usually assigned a Sun Protection Factor (SPF), there has been no standardized SPF testing method to evaluate the protective efficacy of sunscreen products proper to the Korean skin and foreign SPF testing method such as FDA or JCIA method has been employed as it is.

The aim of this study was to investigate the specific conditions for the SPF testing method that could reflect the Korean skin photo-type and the custom of make-up in Korean people in order to give "exact SPF" of sunscreen product to the Korean people.

First, we investigated typical Korean skin-photo types of 1296 Korean volunteers using Fitzpatrick classification system and measured average MED from 48 volunteers who were classified by age, sex and skin type. The result showed that skin type III-V was equivalent to 88.8% of total volunteers (skin type III: 48.8%, skin type IV: 22.2% and skin type V: 17.8%). The mean MEDs of men and women were 36.2 J/cm^2 and 37.6mJ/cm^2, respectively, under artificial solar simulator, showing higher value than that of the westerner, 21mJ/cm^2. The most highly regarded finding in the MED test was that erythema reaction on the Korean skin was maximal in not 24 hrs but about 12hrs since UV exposure under both natural and artificial (Xe arc lamp) radiation sources. These results can help to select the subject who has the common Korean skin for the SPF testing and reduce the variation among SPF values from the individual subjects.

Previous studies reported that contrary to 2mg/cm^2 routinely advised, the sunscreens might, in fact, be delivered at much smaller amounts resulting in lower SPF. Secondly, we reevaluated the amount applied to the skin in real life situation of Korean people about different sunscreen formulations. The mean application was 2.17mg/cm^2 for cream, 0.31mg/cm^2 for pressed powder, 0.91mg/cm^2 for liquid foundation and 0.95mg/cm^2 for make-up base. It seems to be reasonable to modify the testing method by adjusting the amount of sunscreen product to that used in real life. This particular investigation is important for sunscreen users to gain the protection effect intended by the producer against the harmful UV.

This study will be groundwork to establish "SPF testing method for the Korean skin", which can provide information about a realistic protection effect of sunscreen products against UV and be utilized as a uniform measurement method on a national level in Korea.

Sunscreens, Suntan And Anti-Sunburn Preparations Today

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As of today, the only strategy affording the protection of the skin against the harmful solar radiation was to reduce the number of impinging photons. This can be achieved by using umbrellas, hats, clothes and sunglasses, as well as by topical application of substances, which absorb or reflect solar radiation, i.e. sunscreens.

At variance with what is believed by the layman, recent results in the field of photo-biology have pointed out that natural suntan only provides a very small protection. In terms of Sun Protection Factor a natural tan affords an SPF equal to three or four. So, when exposing his/her skin to solar radiation to obtain a tan, one has to be aware not only of the fact that the production of a natural tan is accompanied by the generation of damages, but also that this tan will not protect and that sunscreens or clothes should not be neglected even after a tan is achieved.

Diverting the impinging photons is the first step in sun protection. It is not the only one. It has to be realized that the photons, which are not diverted, enter the skin and provoke molecular damages to DNA, RNA, proteins and lipids. It is important to repair these damages because they trigger cell death and the inflammatory response, known to accelerate skin aging and suspected to have a mutagenic potential which is still to be determined.

It is now possible to provide time-controlled release of anti-oxidants and DNA repair enzymes for topical application. It is also possible to provide self-tan with small yet non-negligible protective capabilities. By maintaining the overall damage at a minimum, such preparations will reduce sunburn and the damages associated with the inflammatory response.

Present day research allows one to expect that in the near future, technological progress will expand the panoply of the tools at hand to achieve protection and safe tanning. Inducers of melanin synthesis and stimulators of energy metabolism, as well as booster of the immune response, which is impaired upon exposure to sunlight, are being studied in depth. The possibility to obtain protection by oral administration of specific products in under investigation.

Prevention / Repair Creams: What's new ?

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Nutricosmeceutical is an artificial word . It tries to describe products that contain ingredients derived from food with high proven efficacy used in cosmetics. There is no legal background for nutricosmeceuticals in contrast to pharmaceuticals, drugs, cosmetics and nutrients which have to meet individual specific regulations in economic regions or countries.
The following major topics will be covered:
- Present situation = Today's position of these products in the cosmetic field
There are clear legal regulations for cosmetics, pharmaceuticals, drugs and food in the EU, US, Australia and Asian countries, which should not be muddled up, even if similar criteria are valid for some ingredients, technologies and test approaches. The process of harmonisation of cosmetic laws on an international level is stepping forward.
- Problems / Open questions = Which relevance do these products offer to the consumer? Which benefits / problem solution is looked for?
Today, consumer needs for creams have dramatically changed in comparison to some years ago. Prevention gets more and more important as life conditions have changed as well as unlimited youth via repair is the dream of many.
- Solution concept = Which new solutions for the consumer do they offer? What is needed to reach these objectives?
UV filters, to protect the skin, are commonly known, but today's prevention creams contain many additional ingredients like antioxidants used until now in the food sector. Furthermore to get repair effects, cosmetic formulas are enhanced with food additives. Key issue from a cosmetic point of view for many of these food derived ingredients is to get them stabilised and effective in cosmetic formulations. Therefore new pathways have been developed to encounter these obstacles as i.e. innovative encapsulations, new formulation types and / or packaging technologies and innovative test strategies to prove efficacy and safety using approriate non invasive instruments and methods.
- Future vision: Where can these products lead to?
Cosmetics stand for effectiveness but also wellbeing and psychological wellness. Holistic concepts " Body, Spirit and Soul" could even be more enlarged.

Lutein: an update of its benefits in human health

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Lutein is a xanthophyll present in several fruits and vegetables consumed in the human diet. Lutein functions essentially in two ways: as a filter of high-energy blue light, and as an antioxidant against photo-induced free radicals and reactive oxygen species. Epidemiological analyses suggest that lutein consumption is inversely related to age-related eye diseases such as macular degeneration (AMD) and cataracts. This is supported by the finding that lutein (and its stereoisomer, zeaxanthin) are specifically and selectively deposited in the macula lutea, an area of the retina responsible for central and high resolution vision. Monkey and human intervention studies show that lutein supplementation results in increased macular pigment. Preliminary data suggest that lutein may improve visual functions of AMD patients after supplementation. There is also increasing scientific evidence pointing to lutein in the protection against skin damage, cardiovascular disease and breast cancer.

Lutein: Natural Bioactive Antioxidant For Eye And Skin Health

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Lutein is a carotenoid naturally found in green-leafy vegetables. It is the most abundant carotenoid isolated from human serum and is deposited in the tissues of the skin, eye, breast, cervix and colon. It is well known that the accumulation of lutein in the macula lutea, the region of the eye responsible for central vision, actually accounts for the yellow pigmentation of that region (1). Furthermore, a strong inverse correlation between lutein intake and risk reduction for age-related macular degeneration (2) and cataract extractions (3-4) have been reported. These benefits are believed to be due to lutein functioning as an antioxidant to counteract the damage done by ultraviolet radiation and by directly filtering blue light (5). Over the last few years, several studies have looked specifically at the ability of lutein to reduce the effects of photo-oxidative damage in skin (6-8). Exposure of skin to ultraviolet radiation results in the formation of reactive oxygen species that deplete the skin's naturally occurring antioxidant defenses and interact with lipids, proteins and DNA. The resulting cellular damage leads to erythema, immune suppression, epidermal cell proliferation and ultimately to premature aging of the skin. Data will be presented which indicate that lutein is capable of reducing the UV-induced oxidative stress in skin.

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Cutaneous Aging And Photoaging

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In the last few years the study of the aging process has become one of the areas in which cosmetologists concentrate their forces. The reason for this is that in all industrialized countries we are witnessing a progressive aging of the population: only 20 years ago the number of people over 70 amounted to 330 million, in 2020 this will rise to over a billion and it is estimated that in 2030 the number of people over 85 will grow until it is multiplied by six in some western countries. All this prompts research into committing itself to the treatment and the prevention of negative phenomena linked to aging; in fact, the wrinkles which form on the skin as time goes by are considered a sign of the crossing over between youth and old age and so, in general, one tends to want to delay their appearance. It is however true that, at least up until today, the great public interest in the wrinkles "problem" contrasts with the little interest shown by the medical class towards the knowledge of the biological phenomena which lead to their formation, so much so that there are few scientific works about the subject. From a close scrutiny of the literature present on the subject it can be deduced that cutaneous aging is a phenomenon as complex as it is inevitable, linked both to the same mechanisms responsible for the general organic aging of the individual, and to extrinsic-environmental factors, conditioned by the life style and above all by photo exposure, which influence the metabolic-structural particularities of the human skin. Cutaneous actinic aging, or photoaging, or dermatoeliosis simulates surprisingly, from a clinical point of view, chronological aging, that is to say intrinsic or physiological aging, but from a careful examination it emerges that it concerns biologically different events with different aesthetic expressions.

In intrinsic aging the epidermis grows thin, the dermo-epidermic junction flattens, the thickness of the collagenic fibres increases and a loss of the vertical elastic fibres occurs; consequently the skin seems more relaxed and pale and a fine wrinkledness is emphasised.

In extrinsic aging, on the other hand, the epidermis is dry, rough, desquamated, hyperkeratosic, with keratinocytes which can vary in shape and size, and it manifests evident pigmentary alterations, with an increase in volume and sometimes even in the number of melanocytes. In the derma the main damages occur at the expense of the elastic fibres, which increase in diameter and split, and of the proteoglycans and glycosamminoglycans of which the deposition increases. Such processes produce a reduction in the capacity of the skin to retain water and an accentuation of the wrinkles. It is the current opinion that the mechanisms linked to general aging and to cutaneous aging are mainly due to the oxidative damage caused by free radicals. The fragmentation of the elastic fibres, the alterations at the expense of the proteoglycans and glycosamminoglycans are in fact phenomena due to oxidative stress. This is one of the motives for which substances with anti-oxidizing activities find wide scale employment in anti-aging cosmetic and dermatological products and why their anti free radical activity must be modulated depending on the age of the person to be treated.

Eumelanins and Pheomelanins in Human hair: a vis a vis of their Biochemistry and Functional Significance

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From the standpoint of comparative biochemistry, mammals are unique in that they posses a single pigmentary system, the melanocyte, which is capable of producing a considerable range of skin, hair and eye color. The eventual pigmentation is under genetic control, but may be influenced by a variety of physiological and environmental stimuli, including hormones, such as MSH, prostaglandins, and UV light, which might contribute as well as determinate the overall susceptibility to sunburn and skin cancer.

At the time when epidemiological studies were made, it was thought that cutaneous melanocytes could only form a single type of black to brown pigment generally described as melanin. Our recent studies, however, have shown that epidermal melanocytes can produce various types of melanin which exhibit different chemical and photobiological properties depending upon the genetic constitution. Most of these advances stemmed from a chemical approach involving direct analysis of melanins and related metabolites, coupled with the identification of new and highly specific markers in pigmented tissues. Although many things still remain to be explained, it seems now clear that melanin types found in human skin and hair are much more varied than previously believed and include a variety of structurally distinct type of eumelanin and pheomelanin at various degree of post-synthetic modification which may interact differently with UV light.

It the purpose of this presentation to provide an overview of the progress so far made with special emphasis on two critical issues, namely: the structural variety of melanin in Caucasian subjects and a new microanalytical procedure of melanin types in human hair as a mean for predicting individuals at high risk to actinic damage, skin cancer and melanoma.

Skin Protection Properties Of The Compatible Solute Ronacaretm Ectoin

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Ectoin (2-Methyl-1,4,5,6-tetrahydropyrimidine-4-carboxylic acid) is a compatible solute that occurs naturally in various halophilic organisms. Our investigations, comprising a number of different experimental methods, have shown that ectoin protects the human skin from damage such as that caused by exposure to UV-radiation or other environmental stress factors. Treatment with ectoin protects the skin cells from UV-radiation that would otherwise lead to damage of biopolymers, cellular immune suppression or apoptosis (cell death).

In the tests carried out, the formation of SBCs ("sun burn cells") brought about by UV-radiation was prevented or at least reduced, depending on the intensity of the radiation involved. The formation of SBCs indicates the number of cells subject to apoptosis due to excess cell damage. The photochemical processes that initiate the formation of SBCs are still unknown; however, there are some indications that UV-induced DNA damage is one of the important factors involved. Treatment of skin cells with ectoin using an organo-typical skin model showed that cell damage could be significantly reduced by irradiating with UV-light at 30, 60, 100 and 200 mJ/cm^2 using a SOL500 sun simulator.

The epidermal Langerhans cells exercise a key function in the immune system of the skin. However, they are particularly sensitive to UV-induced stress. Effective protection of these cells is thus equivalent to providing effective protection to the epidermal immune response. In our investigations, ectoin demonstrated a protection function against UV-induced cellular immune suppression (reduction in the number of Langerhans cells) in human skin by in-vivo product application; this was proven by subsequent ex-vivo/in-vitro analysis of the number of Langerhans cells. Under the selected study conditions, a significant reduction (approximately 50%) in the number of Langerhans cells in untrearted skin was achieved under the influence of 1.5 MED (minimal erythemal dose) UV-radiation. Pre-treatment with placebo led to no significant protection (compared with untreated, irradiated areas) against UV-induced reduction in the number of Langerhans cells. Pre-treatment with ectoin, however, resulted in high and significant protection of Langerhans cells under UV-radiation (compared with untreated, irradiated areas).

In the heat-shock protein tests, the synthesis of stress proteins in the skin cells was accelerated after treatment with ectoin; this protected the cells against early cell damage through exposure to adverse environ-mental con-ditions. Stress proteins are an evolutionarily and highly conserved family of proteins that constitute a fundamental cell protection and defense mechanism and have been identi-fied in all cells in living organisms and cell cultures. Triggers of such stress responses include changes in temperature, chemicals (heavy metal ions, alcohols, oxygen-free radicals), UV-radiation and various pathological conditions (viral infec-tions, fever, inflammation) . During heat shock, stress proteins HSP 72/73 were expressed significantly faster in ectoin-preconditioned primary human keratinocytes than in untreated control cultures.

Contact Dyschromias

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Various exogenous chemical substances can induce contact dyschromias (leukoderma, hyper/hypomelanosis, tattoos). Contact leukoderma may be primitive (chemical leukoderma) or secondary (post-eczematous leukoderma). The primitive form features an aquired, chemically-induced well-defined depigmentation, due to the melanocytotoxic action of various chemical substances such as phenol and catechol derivatives. Contact hypermelanosis can be caused by various pathogenetic mechanisms. The most common types are melanin and non melanin-induced brown marks. The former include pigmented contact dermatitis (primitive hyperpigmentation due to optical bleaches, textile dyes and cosmetic paints), cloasma (brown spots on forehead, cheecks, upper lip and chin, caused by cosmetic products), and berloque dermatitis. The latter onsets after contact with scented cosmetics containing 5-methoxypsoralene, present in bergamot oil. Apart from the bergamot, exposure to the sun is also a factor in inducing berloque dermatitis, and especially wave lenghts exceeding 320 nm. Secondary postinflammatory hypermelanosis is the next stage after contact phytophotodermatitis with plants containing furocoumarins. Non melanin primitive dyschromias can be observed in particular clinical pictures of contact phytodermatitis with lawsone (henna) and juglone (walnut). In this case the hypermelanosis is due to the formation of quinones that give rise to hyghly pigmenting derivatives in association with keratin. [Quinones can also be formed as a reaction of polyphenols (abundantly present in many vegetables and fruits) to oxygen: this is the reason why the hands become stained when cleaning artichokes]. Black dermographism is a non melanin pigmentation due to abrasion of metal accessories (jewelry) exerted by "rough" powders occasionally present on the skin as contaminats. Extraneous pigmented particles can accidentally penetrate the skin as wound contaminants, or following explosions. Permanent disfiguring tattoos can ensue after either of these events.

Skin Care Ingredients And Their Application To Decorative Products

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Decorative cosmetics are principally concerned with beautifying and decoration rather than functionality. This presentation will focus on the types of decorative products and how the application of skin care or "active" ingredients may change their functionality. Furthermore, I will explore the effects of colorants, pearlescent pigments, inorganic fillers and polymeric materials on skin imperfections, scars and fine line wrinkles. The presentation will focus on the review of several decorative cosmetics currently in the marketplace and the role played by the ingredients contained within these products.

Cosmetic pigments with special effects - New trends

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Applying decorative cosmetics were and are still the way to improve one's appearance and to further enhance attractiveness.
Starting 60000 before. Christ people have used natural materials. As a source of decorative cosmetics saps e.g. indigo or essences as e.g. carmine or minerals, carbon or metals as colouring agents were widely used. Roughly 30 different colouring agents were known worldwide.
Cosmetic products are intensively associated with culture and religion. The Egyptian's have used cosmetic formulations and could create a big variety of colours. Intensity, design and defined applications of colour have been signs for different classes of society and their rights.
Nowadays colour is representing a tool to underline ones individuality and also to help to maintain youth.
Developing pigments for the worldwide cosmetic market, one has to recognise and to analyse factors like fashion trends, health and environmental influences. On one hand you need information about cultural traditions and styling, on the other hand you have to combine all information in the right way to identify an idea or need and to realise a new and interesting pigment.
Pigments or inorganic colouring agents are currently not only representing colour, they also have to grant functional need, e.g. regulate light reflection on and into the skin to further reduce the sings of ageing.
Pigments with special effects, adapted to desired or fixed trends, should be available to the market on time.
What is the meaning of "effect"? It might be a new colour shade or colour travel, colour change induced by light, temperature, new appearance of colours, transparent or hiding properties, cooling or warming up properties, hiding wrinkles, better skin adhesion and so on. Information about structure and crystallographic modification of e.g. oxide materials can help to fix properties.
A short summary of current trends will be given. Based on this information several pigments will be presented.

Zinc nutritive and skin

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Zinc participates in several biochemical pathways, including immunity, DNA, RNA and protein synthesis, cell division and activation, actions of several hormones and enzymes. It protects the functional integrity of membranes and acts as an anti-apoptotic, anti-inflammatory and anti-oxidant agent. The essentiality of zinc for humans has been well established.
Zinc is also important for skin homeostasis. The link between acrodermatitis enterohepatica, an autosomic recessive disorder affecting early infancy, and zinc deficiency was first described by Moynahan in 1974.
Cutaneous symptoms resembling acrodermatitis enteropathica may be secondary to acquired zinc deficiency from multiple causes: nutritional factors, alcoholism, malabsorption, liver cirrhosis, chronic renal disease and other chronic debilitating disordes. In acute zinc deficiency, the skin eruption is vesico-bullous or eczematous, in the chronic state parakeratotic psoriasiform, with lichenification and moderate scaling. Other possible signs include widespread eczeme craquelee, cheilitis, glossitis, stomatitis, alopecia (with abnormalities of the hair shafts), Beau's lines on the nails, and are usually associated with extra-cutaneous manifestations. The recognition of the underlying zinc deficiency is fundamental since oral zinc supplementation causes regression of symptoms.
In some skin disorders (acne vulgaris, psoriasis, Darier's disease, dermatitis herpetiformis, atopic eczema) the epidermal and/or serum concentrations were found to be decreased, but the actual implications of such abnormalities are still unknown and may be non-specific.
Some evidences seem to support the involvement of zinc in wound healing, prevention of UVA-induced apoptosis, sebum composition and excretion. Sporadic reports demonstrate a potential usefulness of oral zinc in some skin disorders, such as erosive pustulosis of the scalp, necrolytic acral erythema, amicrobial pustulosis associated with autoimmune diseases, and decubital ulcers.

The Scar Management

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Scar compromise function and aesthetic quality.
Functional sequelae of scars include facial deformity (ectropion of the eyelids, obstructing stenosis of the nostrils, excessive shrinkage of the oral opening) and scar retraction with impairment of the mobility of the neck and extremities.

There are a variety of scar revision technique available, and these are selected based upon analysis of the requirements of the scar itself. Selection of the most appropriate technique or techniques depends on scar location, proximity to vital structures, scar direction, scar width, and degree of scar contracture, Analysis of the scar then will allow the techniques of scar revision to be subdivided as follows: excisional technique (fusiform excision, serial excision), irregularization techniques (Z-plasty, W-plasty) and epithelial abrasion techniques (dermabrasion, scalpel abrasion, shave excision), free skin graft and local skin flap.

In this paper the surgical technique most often used by the author are demonstrated namely fusiform excision, lenghtening of scar retractions by Z-plasties, double-vested scar revision, free skin graft, local flap and other techniques.

"Laser Therapy: Keeping Pace With Time"

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A great majority of our patients have problems on photoaged or sun-damaged skin resulting in fine lines, wrinkles, hyperpigmentation, among others. It is therefore our concern to focus on such problems.

A highly effective and therefore recommended treatment modality is the use of lasers. The Vasculight SRä or Quantum SRä is a broadband, pulsed light source effective in the treatment of vascular and pigmented lesions on the skin.

Nonablative techniques can lead to dermal remodelling without the obvious epidermal injury and wound created by the ablative approach. Dermal wounding is followed by new collagen formation, which is a primary mechanism for the restoration of collagen after laser resurfacing. Techniques that induce a dermal wound without the concomitant epidermal ablation allow improvement of dermal photodamage due to the stimulation of new collagen growth. The primary stimulus of new collagen production is collagen injury with subsequent repair. Inflammatory cytokines of various origin influence the expression of extracellular matrix proteins such as type 1 collagen, fibronectin and decorin in skin fibroblasts. These cytokines may be released from immune system cells that infiltrate following superficial capillary damage.

Conclusion: Epidermal coded irradiation using 1320 nm Nd:YAG laser without any sign of epidermal ablation can lead to new collagen formation and associated clinical improvement.

Laser Revision Of Scars: The State Of The Art

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BACKGROUND:
Current laser technology offers a variety of treatments of types of scars and striae . A review of the scientific literature in this field offers considerations and protocol of laser therapy following clinical responses: scar type, laser used, number of treatments, preoperative, intraoperative, postoperative considerations
OBJECTIVE:
To determine the effect of the experiences so in the literature as in the private management
METHODS:
Reports of the studied authors and considerations from the private experience performed on personal record of cases.
RESULTS:
Global assessment scores and significant clinical improvement were significantly improved after laser treatment following the parameters suggested in literature.
CONCLUSION:
The record cases is little but meanful according the suggestions of the scientific literature of the field.

A Special Pill-Mask To Re-Hydrate The Skin Affected By Atopic Dermatitis

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BACKGROUND
Atopic dermatitis (AD) is a common condition affecting the 10% of infants, whose problematic cutaneous cell-mediated immunity, make them prone to skin infection by viruses, bacteria and fungi.
OBJECTIVES
We aimed to investigate the efficacy of an innovative self-preserving polysaccharide-based lamellar emulsion enriched with a chitosan-derived moisturizing and anti-inflammatory compound as an alternative treatment for AD.
METHODS
The study was an 8- week prospective, randomized, open, parallel-group trial with 36 children. 15 (group A) and 12 subjects (group B), pre-washed by a bath oil, were applied twice a day within 3 minutes with 5 _g/g of a chitosan-derived compound solubilized in a lamellar active emulsion by a special imbibed pill-mask (group A), or a carrier emulsion (group B). A third group C of 9 children was treated with a petrolatum ointment for the same period. After one week of cosmetic treatment, all the groups were treated, once a day, with triamcinolone 0,1% ointment.
A clinical score assessing erythema, scaling, crusting and pruritus was performed at baseline and every 2 weeks thereafter on a visual analogue scale.
RESULTS
After 4 weeks from the starting point, a major improvement averaging of 58% was observed in the group A versus group C; 82% of group A vs. group B and 64% of group C vs. group B.
CONCLUSIONS
This innovative lamellar emulsion with optimum cosmetic feeling seems to be the best base for the new chitosan-derived compound more active versus AD than all the classic petrolatum ointments. No side effects were observed during the study period.

New procedures for the treatment of the skin-face black spots and scars

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Black spots usually appear on the skin during the aging process, and may be a cause of concern for many people, because of the old-looking appearance they give. Treatments like lightening creams or peelings are usually inefficient. Good results can be obtained with IPL (Intense pulsed light) or lasers, in particular pulsed dye laser and alexandrite laser. These equipment emit a light (coherent or uncoherent) that hits melanin and causes selective photothermolisys of pigmented cells, that undergo necrosis. Pigmented lesion is then destroyed. Erythema, black crusts or desquamation can appear soon after the treatment and last for 7-10 days. Patient must avoid sun exposure or apply sun protection for 2 or 3 weeks after the treatment. Scars are often a conseguence of chronic inflammatory pathologies like acne. They also can be the result of a traumatic or iatrogenic event, or of abnormal reparative mechanisms of the patients (keloids). Current approaches include topical (chemical peels, microdermabrasion, compressive dressings, cryotherapy), non surgical (fillers: autologous fat, bovine and human collagen, hyaluronic acid derivates, sylicone; steroid infiltrations) and surgical (microsurgery, dermabrasion and laser skin resurfacing).

A New Therapeutic Approach For Scars: Antihomotoxic Drugs

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The aim of this work is to show antihomotoxic drugs can be used effectively in the treatment of hypertrophic simple and keloidal scars. Four patients with untreated hypertrophic simple and keloidal scars were given antihomotoxic drugs, systemically and locally, over a period of three months, from the April 2000 up to date. Treatment (one single session once a week) took place in the author's office. The complete treatment period is generally 6 months, therefore after three months the preliminary results are reported. Any subjective (pain, itching) and objective (distension, colour and thickness) parameters were measured. The patients belonged to different age, sex and race groups, and differed also for the scar location and age, aetiopathogenesis and family predisposition to the occurrence of skin lesions. Age ranged from 39 to 50 years. Three patients were female and one is male; all of them were white. As for origin, the scars were surgical (2 cases), traumatic (2), hypertrophic simple (2) and keloidal (2), and they occurred 45 (1 case), 38 (1), 4 (1) and 1 (1) years ago. As for location, one scar was on the arm, 1 on the face, 1 on the thorax and 1 on the abdomen. The evaluation of the (subjective and objective) parameters of the patient who was followed up longer showed a considerable important improvement of the lesion. According to homotoxicology, an illness is the sign of a defensive struggle against exogenous or endogenous homotoxines (humoural phases); it can be also an attempt by the organism to compensate the damage caused by homotoxines (cellular phases). Antihomotoxic drugs are made of vegetable or animal or mineral substances; they act as homotoxines and induce similar pathological symptoms; then when they are highly diluted in order to eliminate their toxicity and in compliance with the laws of homeopathy and homotoxicology, they trigger other 'dormant' defensive mechanisms. The clinical improvement of the scars that was observed can be the sign of a regressive state from a deposit phase to a reaction and finally to an excretion pbase. Hence, our preliminary results, obtained after only three months of treatment, show that scars can improve clinically when treated with this method. It must be borne in mind that it has no side effects. The author's conclusion is that it can be accepted as an effective complementary therapy to be given together with present allopathic treatments.

Effectiveness of flash lamp- pumped pulsed-dye laser treatment of port-wine stains with the: Our experience

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Background
Port wine stains (nevus flammeus) are malformations of the capillaries located in the upper levels of the skin. These irregulary shaped patches range in color from light pink to red to dark red-violet and may darken according to age. Port-wine stains, usually located on the neck, face and scalp, are present on about 0,5% of newborns. The lesion are congenital, but the cause is unknown.
Many methods such as ionizing radiation, cryotherapy, tattooing, and surgery___ have been used to reduce the visibility of port-wine stains, but all have led unfavorable results. Laser use is especially carried out on children_ due to its selective actioning, consequently it reduces serious complications such as scarrin caused by traditional treatment methods (ionizing radiation and cryotherapy).
Our study had the aim in investigating wheter laser use is more effective in childhood years (age 2 to 13) rather than in young adults (aged 18 to 30)_.

Methods
We studied 15 patients witb previously untreated port-wine stains on the head and neck. These patients were divided into 2 group: the first group (aged 2 to 13) was made up of 9 patients while the second (aged 18 to 30) was made up of 6 patients.
Both groups were treated with this laser technique. After 6 treatments, we assessed lesion lightening compared with controlateral healthy skin, by using a colorimeter. Before laser therapy, the lesions were treated with EMLA (an anaesthetic mixture) to reduce treatment induced pain.

Results
After 6 tratments, first patients group showed a 48% reduction in color difference between the unhealthy skin and controlateral healthy skin.
In the second group the difference was 45 %. Analysis of variance showed that the differences among age groups, in average, of skin color reduction difference between the port-wine stain and the contralateral healthy skin were not significant.

Conclusions
We found that laser therapy is effective in both study groups; but this treatment is lightly more effective in childhood due to the fact the skin is thinner and the lesion are smaller in this particular age group.
Therefore, the age at which therapy is initiated should be based on a careful weighing of the anticipated benefit and discomfort of tratment.

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Effectiveness and Clinical Tolerability of Tazarotene 0,1% gel vs Adapalene 0,1% gel in treatment of mild to moderate acne.

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Acne vulgaris is an inflammatory skin disease of sebaceous follicle and perifollicular tissue, it is clinically manifested by comedones, pustules, papula-pustules, nodules and cysts. Teenagers and young adults commonly suffer from acne and it is usually located face, back and shoulders, more frequent in males than females.

Up until now treatment of mild to moderate facial acne has been effective with retinoic acid (vitamin A, tretinoin 0,01%-0,05%), erytromycin, tetracycline and spironolattone.

Two recently developed topical polyaromatic retinoids, tazarotene and adapalen, seem to be very effective in acne vulgaris treatment (1-2); the aim of our study was to investigate the effectiveness and clinical benefits of both topical drugs.

Materials and methods

Treatments were carried out on 44 patients, age ranging from 15 to 28 years, they all suffered from mild to moderate facial acne vulgaris.

The patients were divided into 2 homogenous study groups by average age and seriousness of the disease:

1st group made up by 20 patients (12 M, 8F) received tazarone gel 0,1% one daily treatment for 12 weeks

2nd group made up by 24 patients (13M, 11F) received adapalene gel 0,1% one daily treatment for 12 weeks.

Results

We observed that a total of 70% of tazarotene treated subjects achieved acne improvement, with a reduction of the open comedones count and a total non inflammatory lesion count; 2 out of 20 patients showed itching, erytema and dryness skin.

Furthermore a total of 75% of adapalene treated subjects achieved acne improvement with a good reduction of non inflammatory and flammatory lesions; 3 out of 24 patients showed local irritation.

Discussions and conclusions

Tazarotene and adapalene have a particular molecolar configuration that are selective for nuclear retinonic acid receptors; these receptors, when activated affect keratinolyte differentiation and block inflammation (3).

Tolerability was good in both regimens: in no cases clinically significant collateral effects were observed.

We conclude that tazarotene gel 0,1% and adapalene gel 0,1% l are both effective in the treatment of mild to moderate facial acne.

Cosmetics: The Past And The Future

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The word cosmetic is derived from the Greek *kosmos tikos,* the power to arrange, to decorate, to adorn.
To enhance personal appeal through decoration of the body, to camouflage flaws in the integument, and to alter or improve upon nature.
Therefore the main purposes for using cosmetics in modern society are: for personal hygiene, to enhance attractiveness through use of make-up; to improve self-esteem and promote tranquillity; to protect skin and hair from damaging UV light and pollutants; to prevent aging, and, in general, to help people enjoy a more full and re-warding life.
Therefore the primary functions of cosmetics are of: cleaning, perfuming and protecting.
While their accessory functions are of keeping in good condition, changing the appearance and correcting body odours. All these functions are necessary to keep the skin and its appendages in good condition. Moreover cosmetic used in daily life has to be effective, completely safe without side effects and, therefore, clinically correct.
what is the significance of effective cosmetic or clinically correct?
They has to have real, innovative and clinically demonstrated functions such as: prevention of wrinkles and of hair loss, promotion of skin lightening and hair growth, modulation of sebum production decreasing the acne gravity and decreasing or increasing the melanin production.

Therefore it is necessary to use active ingredients and carriers with high and proved effectiveness. In other words cosmetics has not to be limited simply to a superficial and psychological functions, but they can also promote human health modulating, the normal physiological function of the skin.

The progress of the new raw materials and the new carriers together with the progress in the knowledge of the skin functions will surely improve the activity of the future cosmetics that, for their better pharmaceutical properties, are beginning to be named as COSMECEUTICALS.

Natural Polysaccharides As New Filling Substances For Soft-Tissue Augmentation

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It is well known that different filling materials, useful as soft-tissue augmentation, are used for cosmetic resurfacing and correction of defects, especially for rejuvenation of the aging face. In addition skin filling agents play an important role in the treatment of atrophic scars. For a skin filler to be amenable for soft-tissue augmentation by the general medical community, it must meet certain criteria. It has to have both a high *use potential*, producing pleasing cosmetic results with a minimum of undesirable reactions, and a low *abuse* potential, in that widespread and possibly incorrect or indiscriminate use would not result in significant morbidity. Moreover the raw material, used as filler, must be non-teratogenic, non-carcinogenic, non-migratory, non-inflammatory, multipurpose and has to provide predictable, persistent correction through reproducible implantation techniques.
Ease of use of the product is also another important aspect. Moreover ease in shipping, ease in handling in the doctor's office, and acceptance by patients are other important criteria. Currently the most commonly used injectable filling agents are bovine collagen, hyaluronic acid (HA) and autologous fat all of natural origin or polyethylene (porex), acrylate compounds, such as polymethylmethacrylate, commonly called plexiglas, of synthetic origen.
Between natural products, the anionic polysaccharide HA is today one of the most used molecula in Europe and its use as skin filler, has been approved by Italian Ministry of Health (MH) if regularly registered and approved as medical device. The European approval of a medical device assures purity, biocompatibility and accessibility, as well as providing information regarding use.
The biochemical and pharmacological characteristics of different polysaccharides and their possible use as skin fillers will be discussed.

Face lifting, Laser Resurfacing and ancillary procedures in face rejuvenation surgery

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Introduction

Patients demand for facial rejuvenation procedures has become more frequent in the last years. This is due to a better population socio-economic status and to the always increasing significance given to appearance in human relationships.

Face-lift plays a key role in the management of facial aging, and allows to correct the laxity of skin and face. During years this procedure has been improved a lot: once it consisted in the elevation and traction of only cutaneous layer, without caring about deep layer laxity. Today we employ more complex technique, which ensure more lasting results.

Materials and methods

Therapeutic approach employed by authors is based upon a careful examination of face defects, and patient desires.

In case of diffuse wrinkling of the face, with light soft tissues relaxation, the authors prefer to perform a **Laser resurfacing** in a part, or in the whole face, reducing wrinkles and gaining a better structured derma. The procedure is executed using a Coherent ultrapulsed laser. Face is accurately prepared before treatment with depigmentants; and cared after with reepithelializing and abirritants.

When the skin and soft tissues lakity is the most evident defect instead, we generally choose to execute a **face lift**, on the whole face, or only on the forehead, on the cheeks, or the neck. Operation acts both on the superficial layers (skin and subcutaneous) and the deep layers (Superficial Muscol Aponenrotic Sistem: SMAS). Endoscopic technique strongly improved face lift: through small cutaneous incisions surgical instruments are introduced under superficial layers and are handled from the external. With the employ of an endoscopic camera, images can be seen on a monitor. In this way it's possible to achieve minimal cutaneous scarring, better emostasis, great respect of surgical planes, less incidence of postoperative complications and recovery time.

Very often a face lift is executed simultaneously with both superior or inferior **blefaroplasty**, to remove skin laxity, fat hernias, and to recover the right lid muscular tone.

When the chin is very short and receding an additive **chinplasty** can improve the aesthetic defect, increasing its definition and projection. The operation is executed placing an high biocompatible implant under the periosteum, in contact with the bone, with which become completely integrated.

In contrast, it's possible to reduce the chin, when is too protrudent. This procedure is executed through an intraoral access, performing a little incision to the inferior gengival fornix.

The excess of fat tissue in the neck can be eliminated by a **liposuction**, which reshape the neck contour.

When the cheeks are poorly developed they can be improved by a **malar prosthesis** that gives to the face and to the smile a more interesting look.

Even the face skeleton is different between men and women, being the frontal bone flatter in the female, and more prominent in the male. In female patients, an excessively protrudent and developed frontal bone confers a masculine looking to the face; it can be reduced with surgery.
One of the most evident modifications of the aging face is the decreasing of volume of the **lips**. This aesthetic defect is solved by authors, with surgical operations that reshape the lips, without increasing their volume, or employing procedures that even achieve a volume change, according to the specific case.
Another procedure often required by patient, in facial rejuvination, is **nose tipplasty**: with passing of the years the volume of nose cartilages increases, changing nose direction downward. In these cases, during the face lift, it's possible to correct this problem with a minimal rhinoplasty.

Discussion and conclusions
Face lift is more and more required, because of increased socio-economic status of the wide part of population. The great amount of surgical chances allows to provide, for each patient, the desired result. The surgeon must guide the patient to take the right choice, suggesting, with the highest experience and care, the possible corrections of the specific defects.
Only a great surgical experience can bring to the correct execution of the agreed surgical plane, reducing to the minimum the incidence and severity of complications. Correct execution even consents to reduce postoperative recovering time.

Surgical treatment of visible cellulite in connection with cosmetic treatment

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Cellulite" (edemato-sclerotic panniculopathy) is an aesthetic problem that affects approximately 90% of adult women. Cosmetic treatments give unsatisfactory results. The most effective treatment is liposuction, that gives almost definitive results. Early liposuction procedures were performed by dermatologists under simple local anesthesia, and were limited by the maximum dosage of lidocaine. The development of tumescent anesthesia allowed treating wide areas, without the risks of anesthetic overdosage: lidocaine in large volumes of dilute solution is less absorbed than the same dose in concentrated solution. Tumesscent anesthesia, besides, causes vasoconstriction and reduces blood loss. Post-operative care requires the assumtion of antiinflammatory drugs (i.e acetaminophene) and wearing compressive stockings for 1 or 2 months.

The Use Of Natural Peloid For Innovative Cosmeceuticals

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Used for thousand of years, natural peat or clays, scientifically known as peloids, is still used today in cosmetic and therapeutic treatments of real skin diseases as well as for single cutaneous alterations, depending on their qualitative/quantitative mineralization and composition.
What is important to know is the quality and, therefore, the origin of the peloid used to be sure of its efficacy.
As matter of fact, a number of thermal muds can offer therapeutic benefits when used at source but only the peloid variety employ the particular repairing process which allow them to be used in home treatments.
The benefits of its use in therapy such as in cosmetic dermatology in cosmeceutical formulation will he discussed.

"Natural" cosmetology: innovative chitosan and gelatin to ameliorate the skin barrier

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A better understanding of existing data, combined with further research, is needed to predict the present and future impact of our life-support systems on mankind and to identify the present and future impacts of cosmetological products to establish conservation priorities.
Our studies are involved in the planning of cosmetological molecules that can make cosmetological for the future generations better grasped at the ecological life-support systems.
Over the last few years, gelatin and chitosan have been widely used in cosmetology as active materials to maintain and/or improve skin-barrier functions. Their different structural and biofunctional characteristics appear to suggest different conditions of elective applicatiou. Chitosan seems mainly suitable to maintain a high level of skin hydration with a parallel improvement in tissue homeostasis preventing water evaporation at the cutis-environment surface. By contrast, gelatin seems to be more suitable to stimulate poorly reactive skin microenvironments by virtue of its more prolonged in situ biopresence compared with chitosan.
The association of chitosan and gelatin could offer considerable advantages as their main "stimulation" attitudes evolve through different bio-temporal pathways.

Novel Silicone Thickening Technologies: Delivering The Appropriate Rheology Profile To Optimize Formulation Performance

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Viscosity is the most well-known expression of rheology. It is frequently used to monitor formulation stability over time and to define the formulation profile for best delivery as a novel product form or from specialized packaging. Rheology has become increasingly important because an understanding of its parameters has allowed formulators to optimize the sensory and performance attributes of personal care products. Studies also have demon-strated that formulation rheological parameters can be correlated to sensory attri-butes such as spreading, body consistency and greasiness of creams when they are applied to the skin.

In general, polydimethylsiloxanes exhibit Newtonian rheological behavior; that is, they become pseudoplastic with increasing polymer viscosity. The addition of functional groups on the siloxane backbone may also modify the rheology profile of silicones.

Developments in organosilicone chemistry have led to new ingredients that can affect the rheology of formulations across a wide range of personal care applications. These new materials, alkylmethylsiloxane (AMS) waxes and silicone elastomers, provide a number of performance and sensory attributes. Depending on the product application and required benefits, formulating chemists can select the most appropriate materials from these two product categories.

Tests show that high melting point AMS wax helps stabilize water-in-silicone creams containing up to 15% in mineral charges. Studies demonstrate that although the wax increases the consistency of water-in-oil sys-tems, it does not negatively affect sensory performance.

Silicone elastomer technology provides a means of increasing tbe viscosity of volatile silicones without sacrificing their desirable silicone aesthetics. This new technology is based on a cross-linked elastomeric silicone made with Cyclomethicone *in-situ*. The ingredients resulting from this patented technology allow other ingredients such as anti perspirant salts or mineral charges to be suspended in Cyclo-meth-icone while providing a dry, velvety feel that is quite different from the silky feel of conventional silicones. The rheology of these materials also is quite different, and they could be useful for achieving novel formulations with desired performance attributes and unique sensory characteristics.

Another concept for the use of this new Silicone elastomer technology is the suspension of essential oils resulting in a new delivery form for perfume combining both sensory and olfactivel sensation.

This paper reviews the impact of new organosilicone materials on rheological behavior as it relates to performance and sensory benefits. An understanding of the unique properties of these materials can help chemists meet new formulation challenges.

The cosmeceutical Pycnogenol®

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Pycnogenol® is the extract of French maritime pine bark (Pinus pinaster) which is particularly rich in procyanidins. Pycnogenol® is among the most powerful natural antioxidants and recycles and prolongs the actions of vitamin C and E. Pycnogenol® is safe also during continuous intake and non-allergic in topical applications. Extensive research has demonstrated Pycnogenol®'s value for a healthy skin, in both topical and oral applications.

The procyanidins in Pycnogenol® bind tightly to collagen fibres of the skin, protecting it from degradation by free radicals as well as by degradative enzymes. Furthermore, Pycnogenol® helps to prevent the photo-ageing effect of sunlight, by neutralising free radicals and reducing inflammation. In healthy volunteers orally taken Pycnogenol® reduced UV light-induced erythema in a dose dependent manner. It was shown that oxidation-sensitive NF-_B regulated gene expression of inflammatory mediators was counteracted, thus preventing the irradiated skin from getting inflamed.

In another study the pronounced antioxidative capacity of Pycnogenol® was shown to reduce hyperpigmentation in women suffering from chloasma (melasma). After 1 month supplementation with 75 mg Pycnogenol® per day both the affected area size as well as the pigmentation intensity were significantly reduced.

Pycnogenol® improves blood microcirculation by enhancing production of endothelial nitric oxide which dilatates fine blood capillaries. The skin gains better supply with oxygen and nutrients and better removal of waste products. The resulting replenishment of the skin supports a firm, juvenile and healthy look.

The Antioxidant Network Of Macula Lutea

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For the eye to fulfill its main function as the sensory organ of vision radiation, and particularly the visible spectrum, must penetrate the anterior ocular tissues and be transmitted to the retina for absorption. Processing of light for vision is accomplished in fact, by the optical tissues-cornea, aqueous humor, lens, and vitreous humor – which receive light in that order and focus it on the neural retina.

On the other side the continued exposure to solar radiation represents a hazard too the integrity of ocular tissue, resulting in acute ocular disturbance. As matter of fact there is ample documentation of solar retinophaty and snow-blindness together with development of cataracts and alterations in the photoreceptors and retinal pigment epithelium of the retina. As matter of fact the ability of radiant energy to damage the ocular tissues is largely determined by the spectral transmittance/ adsorbance properties of the individual tissues.

Thus the optical tissues of the eye that precede one another in the path of the incident energy offer filtration effects that are important in restricting exposure of the inner tissues to energy. However there is a tendency for lens transmittance to decrease as a function of increasing age, especially the blue region of the spectrum. Finally it has become apparent that the formation of oxigen free radicals and singlet oxigen in excessive amounts may play a key role in the cataractogenic process, by initiating lipid peroxidation and other toxic changes, such as protein cross-linking and enzyme inactivation.

The yellow spot called *macula lutea* present in the center of the retina seems to be the light-guardian of our eye. Thanks to the high presence of oxigenated carotenoids, lutein and zeaxanthin, the macula may filter the damaging blue light, quenching the photochemically-induced reactive oxigen species (ROS). Some new studies swill be reported to demonstrate the quenching and protective activity of oxigenated carotenoids.

N-3 and n-6 PUFA's in healthy and diseased skin

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Fatty acids exert 3 major biological functions:

- **Source of energy**
  Although this concerns mostly medium chain saturated FA it is noteworthy that the FA in the fat are an excellent source of energy.

- **Structural elements of membranes**
  Membranes are highly selective permeability barriers that carry the energy conversion process, control the flow of information between cells and contain receptors for external stimuli. They are formed by a double layer of phospholipids containing LC- PUFAs (arachidonic acid, EPA, DHA) that gives them the physical property of a fluid.
  The transdermal waterloss is mostly due to the linoleic acid content in the skin, although g-linolenic acid might be as important as well.

- **Messengers**
  All LC-PUFAs containing 20 carbon atoms are precursors of eicosanoids. This includes
  - dihomo-g-linolenic acid (DHLA): C20:3 __ 6
  - Arachidonic acid (AA): C20:4 __ 6
  - Eicosapentaenoic acid (EPA): C20:5 __ 3

Eicosanoids act as local hormones interfering with cellular regulation. They are involved in inflammation, regulation of blood flow, control of ion transport, modulation of synaptic transmission, termination of pregnancy, etc.
The prostaglandins modulate physiological processes in the skin; they can evoke pro-inflammatory or anti-inflammatory reactions, depending on the precursor fatty acid. A balanced application of w-3 and w-6 PUFAs, either by food or by supplements, may thus alleviate inflammatory skin disorders.

Recommendation
During a workshop on the essentiality of __ 6 and __ 3 fatty acids, April 7-9 1999, in Bethesda, a daily intake of 0.3 energy% EPA plus DHA has been recommended Assuming a daily requirement of 2000 kcal, this amounts to 0.65 g/day. This is in good agreement with dietary guidelines, revision 2000, by the American Heart Association and with the qualified health claim issued by the FDA on October 31, 2000, and other scientific recommendations. Since this can hardly be achieved by eating fish only by a majority of the population, alternative sources have to be explored.

N-Carboxymethyl chitosan: multiple applications in innovative cosmeceutical products

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Chitin supports countless forms of terrestrial and marine life since many million years. It is the most abundant nitrogen compound and cationic biopolymer. Thanks to modern technology, its isolation and purification from marine biomasses provides today chitosan, a natural biocompatible and biodegradable polymer approved for human consumption as a dietary supplement.

Chitoglycan® is the carboxymethylated soluble form of chitosan, carrying a glycine aminoacid on most of its units. It belongs to a family of carboxymethylated chitins and chitosans, amply tested in the cosmetic and biomedical fields. Among its characteristic properties, the inhibition of the bacterial growth within the oral cavity, the prevention of Streptococcus mutans adhesion to the tooth surface, and the stabilization of the local pH, permit to recommend this functional ingredient for oral care products.

The antibacterial action of Chitoglycan® combined with its efficacy against *Candida albicans*, qualify Chitoglycan® as a functional ingredient in toothpastes and mouthwashes. Formulations of toothpastes have heen developed including traditional silica-based toothpastes, as well as advanced toothpastes deprived of inorganic ingredients.

Chitoglycan® is also recommended for mouthwashes, and especially for the treatment of pyorrhea or other gum diseases, where it improves effectively the health of gums and oral mucosae. Formulations undergoing pre-clinical studies include artificial saliva, and freeze-dried materials for the regeneration of gingival tissues.

A series of pre-systematic tests has been carried out with several representative formulations. Final formulations of pre- and after-sun care products have been created and their organoleptic and stability characteristics have been evaluated.

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ABSTRACTS

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The International Rules in the Cosmetic and Dietetic Field: Status quo and Future Perspectives

Surface Appearance Of Genital Mucosa. Structure And Function

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The genital mucosa can be divided into two main portions, vaginal and vulvar. The vaginal mucosa extends from the uterine cervix to the hymen. The vulvar mucosa covers the vestibule which is the portion of the vulva that extends from the clitoris to the fourchette, and laterally from the hymen to Hart's line on each labius minus. The Hart's line is the junction between the nonkeratinized mucous membrane epithelium of the vestibule and the thinly keratinized epithelium of the medium aspect of the labia minora. The vestibule derives from the urogenital sinus, while the vagina from the Mullerian paramesonephric tissue. Despite this different embryologic origin the mucosa of the vestibule resembles that of the vagina. The vagina is covered by stratified squamous epithelium 150 to 200 mm in thickness, that is normally glycogenated and nonkeratinizing. The glycogen is found in the intermediate and superficial cells and its presence is an indicator of the oestrogen activity. The lactobacilli utilize tbe glycogen to maintain the acidification of the vaginal environment precluding infections. The mucosa may appear to be studded with multiple papillae because of the complex pattern of ridge and recesses. This aspect together with the histologic characteristics renders the vagina functionally suitable to sustain the coital injures permitting copulation and insemination. Actually, few nerve fibers, as free endings, are found in the vagina, accounting for the reduced sensation of touch and pain. On the contrary the vestibule with its rich nerve supply represents the main sensorial district of the genital mucosa.

The mucous membranes in childhood and hold age

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The mechanical and biological functions of the mucous membranes are the expression of the biochemical nature of their components and structural organization.
As the various organ systems in the body, the mucous membranes undergo to several age-dependent morphological changes caused by hormonal actions, disease, environmental conditions and aging. Variations of the epithelial thickness, connective elasticity, blood flow and biochemical composition (quantitative and qualitative changes of collagen, rate of superficial keratinisation of epithelial surface, percentage of deposition of inter-cellular material such as lipids or glyco-conjugates) involve all mucous membranes as well as the skin and they are particular evident at the level of the target organs for sex steroids. In fact, at puberty, with the starting of hormonal activity, the urogenital mucosae increase in height and resistance while it become more or less atrophic after menopause.
The direct consequence of the unlike structural and molecular organization of the mucous membranes, at different age, is a diverse biological activity. The absorption and secretive capacity, the permeation to different substances and drugs through the epithelium and the host defence ability of mucous membranes are maximally expressed in childhood while they decline in old age.

Body Odor & Dry Deodorant Cosmetics

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The art of making body smell better through personal hygiene or masking malodorous emanations of the body is evident in all the civilizations. Bodily odors may originate from a number of sources but the most characteristic and stigmatized of these is, however, axillary odor. The early attempts of counteraction involved the use of fragrant oils to mask the malodors and this approach has continued to this date.

The real breakthrough in controlling axillary malodor came in the latter part of the 19th Century thru the pioneering work of several scientists who explained the structure and function of human sweat glands and the role played by the bacterial microflora of the human skin. The characterization of secretions of the underarm and the skin bacteria led to the development of various formulations for the control of malodor. Strategies consisted of reducing perspiration by blocking sweat glands or reducing the number of viable microorganisms on the body surface or both and masking the residual odor with a substantive fragrance.

More recent developments led to the understanding of the axillary chemistry, identification of specific steriods and acids which represent this unique body odor. This coupled with the characterization of apoeccerine gland, the nutrients viz water, amino acids, electrolytes, minerals, lipids and proteins which are available to support bacterial growth has opened up totally new avenues for the control of axillary malodor.

The importance of antiperspirants and deodorants is amply demonstrated by the fact that they have grown to be one of the largest Health and Beauty Aids (HBA) product categories in the United States. The consumer sales exceeded two billion dollars in USA in 2000 giving it a compounded average growth rate of about ten percent per year for the last 50 years.

This paper summarizes our current understanding of axillary odor, its formation, current and potential strategies to control odor, future trends and future market growth potential for dry deodorant products.

Ros And Quenching Capability Of Carotenoids

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Reactive oxygen species (ROS), capable of damaging biologically relevant molecules, are efficiently physically scavenged by carotenoids.
Many researches have focused on the effects of carotenoids alone but also interactions with lipopbilic antioxidant α-tocopherol or/and hydrophilic ascorbic acid have been reported.
Important dietary sources of carotenoids for tbe human are green leafy, and orange to red vegetable/fruits but also seafood, including lobster and salmon.
Tbe uptake of these natural compounds from the diet, transported in the buman body by circulating lipoproteins, is influenced by several factors such dietary fat, presence of fiber, or food processing.
A number of biological effects have been attributed to carotenoids including antioxidant activity, influences on the immune system, control of cell growth and differentiation and stimulatory effects on gap junctional communication.
These effects are through to be relevant with respect to their protective properties. Therefore carotenoid depletion studies may provide a clear picture of whether and when carotenoids are important antioxidants and inform on their antiradical activity.
Moreover measurements of their activity in the body may help to disentangle their role in disease. In contrast to dietary assessment methods, the control of bio-markers reflects more directly the activity of antioxidant in human tissues.
As matter of fact, by the potential bio-markers antioxidant capacity is possible to describe the concerted action of the radical scavenging properties of individual antioxidants.
Some new experimental data on the antioxidant activity of new dietary supplements will be reported.

Health-benefits of phytoestrogens by oral route

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Phytoestrogens, naturally occurring compounds found in many foods, are defined as plant substances structurally similar to estradiol but which have estrogenic and anti estrogenic activity. Lignans, isoflavones and coumestans represent the main classes of these compounds. The current interest for phytoestrogens made by epidemiological data indicating that women ingesting high amounts of these substances, particularly as isoflavones in soy products, have less cardiovascular disease, breast and uterine cancer and menopausal symptoms than those eating Western diets. These potential biological properties of phytoestrogens have resulted in the current euphoria over their possibility for the prevention and for treatment of many hormone-dependent diseases. Concerning this, recently preclinical and clinical studies have found that isoflavones had lipid-lowering effects as well as the ability to inhibit low-density lipoprotein oxidation. They have been shown to normalize vascular reactivity in estrogens deprived primates. Furthermore, phytoestrogens have antineoplastic effects with inhibition of cellular proliferation as well as angiogenesis, properties that could be protective against cancer development. Finally, menopausal symptoms and bone density may be favourably influenced by phytoestrogens. However, although these preliminary studies suggest beneficial effects of importance to healtb, the clinical application of these estrogens mimes is in its infancy and the clinical data supporting many of the currently claimed health benefits of phytoestrogens remain to be established definitively. Moreover, some important aspects are yet to clarify. Metabolism and bioavailability of several classes of phytoestrogens are of great relevance for their biological activity. In fact, conversion by gut micro flora of daizein to its isoflavon metabolite equol, which is a more potent estrogen and anti-oxidant, occurs only in some individuals (about 35% of subjects are equal excretors). This has considerable implications for daizein bioavailability and therapeutically functions. Finally, evidence from studies of various animal species has demonstrated that ingestion of high levels of phytoestrogens can produce adverse effects on reproductive end points including fertility and also shown that exposure to high doses of phytoestrogens during development can adversely affect brain differentiation and reproductive development in rodent. In humans, there is a lack of information concerning the possible effects of high doses of phytoestrogens in infants and during reproductive age.

Treatment of pre-menstrual syndrome (PMS) with the new developed Vitex agnus castus extract (Ze 440)

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Pre-menstrual syndrome (PMS) is a complex combination of symptoms characterized not only by psychological changes including irritability, aggression, tension, anxiety and depression but also by somatic changes such as fluid retention, breast tenderness, headache and weight increase. Women are affected by PMS irrespective of socio-economic status, race or cultural background, and family clusters are well-documented. Up to now the causal origin of PMS has not been clearly elucidated. However, hormonal causes, effects of neurotransmitters and prostaglandins, nutrition and drugs have all been implicated with PMS.

Currently a clinically documented therapy for the causal treatment of PMS with synthetic drugs is not available. The recommended treatment of PMS consists of dietary and general symptomatic measures such as restricted water and salt intake, regular physical activity and psychotherapeutic counseling. If these measures do not reduce the severity of symptoms sufficiently, hormonal regulation via progesterone substitution as well as vitamin B6 substitution or psychotropic agents are used for the treatment of PMS.

Vitex agnus-castus (Chaste tree) has been used already in antiquity to successfully treat menstrual disturbances. Efficacy and safety of the Vitex agnus castus extract (Ze 440) have been definitively verified by means of two clinical trials. In an open, prospective and controlled drug monitoring study 43 female patients suffering from PMS (DMS III R) were carefully selected, whereby 13 of the 43 patients still were under oral contraceptives (1). The study started 2 cycles (baseline control) before the treatment period of 3 cycles and lasted for another 3 cycles for post-treatment observation. The therapeutic response was assessed using the Moos' menstrual distress questionnaire and the clinical global impression scale (GCI). The scores of the visual analog scale were significantly reduced and regained after the treatment period. Based on this data another clinical trial was designed which was in line with the rules of Good Clinical Practice (GCP). This multicentre, double-blind, randomized, placebo-controlled and prospective study included 170 patients and was aimed to determine the efficacy and tolerability of Ze 440 (2). The therapeutic response was assessed by recording of 6 typical complaints of PMS and the clinical global impression scale (GCI). The study proofed a significant ($p<6x10^{-6}$) superiority of Ze 440 over placebo.

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Hormones & Skin

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The physiological and pharmacological effects of steroids on skin and its appendage are remarkable, such as the androgenic effects on enlargement of sebaceous gland, on the growth of beard, on hirsutism, and the anti-inflammatory effect of corticosteroids. Moreover skin is not only a metabolic organ for these hormones, but it constitutes a target organ and also a good route of administration.
As matter of fact hormonal mediation has become a focal point of great interest as measurements of various hormonal substances have been improved.
It is possible that endocrine substances may eventually be shown to affect tissues indirectly through alteration of immune mechanisms. It appears, moreover those hair follicles, for example, are innately programmed, but they can also be slowly influenced by systemic factors. The full complexity of these factors may not, as yet, be established, but it is known that several hormones profoundly affect the passage of the molt cycle, though none alters its sequence. For example, steroid hormones, especially estrogenus, act as a brake, and thyroid hormones as an accelerator. These hormones appears mainly to control the period of follicular quiescence; once anagen starts, their effects, though perceptible, are slight.
If same, at least of the systemic factors that mediate activity of hair follicle are known, the generation of what controls the intrinsic cycle remains wide open It may be imagined that systemic hormones could act by modifying the dermal environment to influence the dispersal of the inhibitor.
There are, in fact, profound changes in dermal collagen and fat as well as in mast cells, histamine, and serotonin throughout the follicular cycle of the rat.
However under hormonal treatments changes in the hair follicle and dermis remain strictly
In phase, and it is possible to establish which is the cause of the other.
Concerning the metabolic aspects, the most frequently observed reaction in cutaneous steroid metabolism is the interconversion of keto and hydroxyl groups. The equilibrium of these reversible reactions is usually in the direction of the formation of ketone, which in most instances constitutes the major metabolite of the parent steroid. Another important aspect is the metabolism versus conjugated steroids. Human skin has poor capacity of metabolizing or synthesizing conjugated steroids. It can be remarked that various metabolic activity are not uniformly present over the all skin surface, since certain specific areas are provided of intense selected activities, such as the S-alfa-reductase. Finally, also the problem of concentration ant topography of various steroid receptors must be considered as well the effective significance of these data. Presence of steroid receptor does not sufficient to identify a tissue as target of the hormone. The sum of these biological considerations provides evidences that human skin is an active organ versus steroid hormones and alteration in hormonal potency can be expected to cause differences in the influence on cellular activities. Therefore steroid metabolism modifies, if not controls, hormonal activities of steroids. Furthermore some of the steroid metabolites produced in tbe skin do enter in the general circulation and their systemic effects deserve attention or can be used in different clinical conditions.
In addition to what above mentioned many hormonal molecules act on the skin in a way to cause significant chemical reaction in dependence of the different endocrine pathologies.

Percutaneous Absorption: Controlled Release

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It is tacitly assumed that one mechanism of action of Nutri-Cosmeceutical relates to the delivery of one or more "actives" into one of more skin compartments: stratum corneum, viable epidermis, dermis, eccrine / apocrine / sebaceous glands and hair follicles. An extensive, largely in vitro, and/or animal literature documents models for assaying the above. This presentation will provide examples of controlled release as it relates to the above.

Delivery System Affect The Efficacy Of Cosmetics

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Two of the main problems confronting chemists and dermatologists have been to obtain the absorption of cosmetic product through the skin layer, and to prove their clinical efficacy.
At this purpose have been commercialized the so called clinically correct cosmetics®, that is to say products whose efficacy have been demonstrated and proven safe. In fact, the interference caused by all the products topically applied to the skin, mainly on the intercellular lipids of the stratum corneum (SC) but also on the cellular membrane of all the viable skin layers, determines both the minor or major efficacy of the cosmetic principles used and, of course, the eventual undesirable side effects that might arise.

Therefore the best way to make the active principles efficacious is represented by a vehicle which must have chemical-physical requisites to enhance stability, efficacy and the degree of penetration in the skin layers.
The efficaciousness of cosmetic products, then, can be determined by the relationship established between the permeability coefficients of the SC and the structure features of the penetrants, such as the cosmetic carrier and the active principles used.
The optimisation of the concentration of the active principle and its degree of activity in the right cutaneous area will make the beauty product efficacious, especially if the product has a pleasant aspect and it is easy to apply.
These are the requisites that the customers expect.
To improve and enhance the degree of penetration of products in the skin layers, new technologies based on the so-called 'micro-structures' are being studied. The diameter of these structures is in fact about one nanometer, which is about a thousand times smaller than a micron or bacteria; the average diameter of a molecule!
It was possible to produce nano-size zinc oxide particles for use in sunscreens, making the usually white-colored cream transparent because the tiny particles don't scatter visible light. Naturally the realization of these nano-particles is not easy and today's scientists readily fashion nanostructures on a scale of one to a few hundred nanometers small indeed, but much bigger their single molecules.

This and other will be possible to obtain in next future by the progress of nanoscience.

Transepidermal water loss and transcutaneous penetration

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Transpepidermal water loss (TEWL) represents the flux of water across the whole stratum corneum. Its measurement is based on the estimation of the water vapour gradient in an open chamber and has been proven to be useful in the estimation of the effectiveness of the skin as a protective barrier. The technique can be applied to detect anomalies in the SC, to assess the effect of various drugs and cosmetic treatments and to have an indication on the permeability of the various sites of the skin to topical agents. Indeed, a good correlation has been reported between TEWL and transcutaneous penetration: changes in barrier efficiency have been strictly correlated to changes in baseline TEWL. In the presentation the influences of site variability, age, sex on both TEWL and transcutaneous penetration will be described as well as instrumental related problems which may influence the readings.

The Role Of NMF In Skin Hydration

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The Natural Moisturising Factor (NMF) is a complex of hygroscopic small molecules that cause the stratum corneum to retain liquid water even when exposed to low humidity. NMF can comprise as much as 10% of the dry weight of the stratum corneum, giving rise to a solution concentration as high as 20%, or 2-3 Molar – a concentration well able to pull moisture out of the air and into the corneum cells. Most of the NMF is produced within the cells of the stratum corneum by the hydrolysis of filaggrin, a highly basic protein present normally in the lower layers of the stratum corneum. Filaggrin in turn is produced during the final stages of terminal differentiation by partial proteolysis and dephosphorylation of a precursor protein profilagggrin, which is the major component of the keratohyalin granules in the viable epidermis.

The level of NMF in the corneum is well known to be correlated to skin dryness and the mechanism by which lower NMF levels would lead to a tendency to dryness are intuitively obvious. However the mechanisms by which the level of NMF is controlled are still only partially understood and an understanding of these mechanisms is essential to understand the contribution of changed NMF levels to dry skin.

Data will be presented to show that there are four principal factors controlling the NMF levels.

1. The maximum potential of the stratum corneum to produce NMF is controlled by the amount of profilaggrin produced in the granular cells. This is controlled in a complex manner that is as yet not fully understood. Cellular control systems can certainly modulate the level of profilaggrin – retinoids for example have been shown to affect profilaggrin levels. There may also be a genetic level of control as 3 different polymorphs of the profilaggrin gene have been identified in man, differing from each other in the number of repeats in the gene.
2. The deepest layers of the corneum contain no NMF as its production from filaggrin has not yet taken place. The level within the corneum where the conversion of filaggrin to NMF takes place is controlled by the water activity gradient through the corneum. When the environment is humid, the generation of NMF is delayed until the cells approach the surface of the skin. When the environment is dry, the generation of NMF starts deep in the corneum so that the total amount of NMF in the corneum is greater.
3. Under certain conditions and in certain individuals conversion of filaggrin to NMF is incomplete leading to the presence in the outermost stratum corneum of an enzymatically modified form of filaggrin which is resistant to the proteases that should convert it to NMF.
4. NMF is leached from the skin, particularly following detergent damage, creating a gradient of NMF concentration from a low level in the outer stratum corneum to a higher level deep in the corneum.

Formulation Of Topical Vehicles By A Novel Class Of Liposomes

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Introduction

Penetration of substances through the skin is limited by different natural barriers, notably the stratum corneun (s.c.), which is the outer layer of the epidermis.

To overcome this barrier, numerous experimental strategies have been explored in the last decades. Physical poration of the s.c. by means of mechanical or electrical methods have been used to allow substances to penetrate into the skin. Penetration by iontophoretic methods are less aggressive to the skin, but approximately only 0.005% of the skin surface can be made permeable. Also chemical methods are used to increase penetration through the skin by modifying the barrier properties of the lipid components of the s.c..

Our aim is to enhance penetration of hydro- and / or lipophilic components by using special designed liposomes to carry their payload to the target sites in the skin.

Liposomes are small vesicles, consisting of one or more lipid bilayers. These membranes normally consist of natural components (soy lecithin), which make these carrier systems biocompatible. Increased rates of penetration have been found for various active ingredients when they are topically applied in the liposomal form (1). In contrast to these observations, other investigators could not find improved skin penetration of liposomally encapsulated substances (2).

The conflicting results may stem from different lipid compositions of the liposomes employed. In the recent study we examined the ability of three different liposomes to carry lipophilic as well as hydrophilic substances into the skin. We compared vesicles with flexible membranes with gel-state liposomes.

Experimental Methods

The fluorescent dyes carboxyfluorescein (hydrophilic, 1mM) and rhodamine-PE (lipophilic, 0.5 mM) were encapsulated in three different types of liposomes (100 mg lipid / ml) by homogenisation which was followed by extrusion through 0.1 µm micropourous filter or by ultrasonication.

The lecithin used for these preparations differed in the phospholipid compositions as follows:

PL 80-liposomes: lecithin containing > 75% of un-saturated phosphatidylcholine (PC)

PL 25-liposomes: lecithin containing < 30% of un-saturated phosphatidylcholine (PC)

PL 90H-liposomes: lecithin containing > 85% of saturated (hydrogenated) phosphatidylcholine (PC)

Human abdominal skin was obtained from surgery and placed in Franz-type diffusion cells. All preparations were non-occlusively applied onto the s.c. of the skiu (50 µl / 9 cm_). After three hours the skin surface was rinsed and blotted dry. Then skin cylinders were punched, cryo-fixed and cut in 10 µm pieces. These samples were examined by confocal laser scanning microscopy (BioRad MRC 1024).

Results and Discussion

The results show that liposomes with a rigid (gel-state) membrane like PL 90H-liposomes are not

able to penetrate into the skin, nor they can deliver their payload across the s.c. (fig. 1c). Liposomes consisting of only 25% of phosphatidylcholine (PL 25-liposomes) do not form stable vesicles but build up other lipidic structures which remain onto the skin and keep the actives there (fig. 1b). Only the liposomes with a flexible, deformable membrane (PL 80-liposomes) show the properties of penetration and the ability to carry their payload into the deeper skin layers (fig. 1a).
Thus the thermodynamic state of the bilayer and the flexibility of the bilayer influence strongly the penetration deptb of the vesicle into the skin.
The driving force for the movement of flexible liposomes is presumably generating by the hydration gradient across the skin, which varies from 15-20% in the s.c. up to 70% in the stratum granulosum (3).

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Novel Delivery Systems For Nutri-Cosmeceuticals

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The cosmetic products currently on the market combine conventional formulations with new technologies for improved and controlled delivery.
Externally applied vitamins, whose specific effects are still being studied, have nutritional and protective functions. Previous work has shown that dermal application of tocopherol inhibits UV-induced cellular damage and prevents the induction of skin tumors. Intracellular uptake of tocopherol compounds is necessary for optimal photoprotection effect.
Ethosomes are novel lipid vesicular carriers for enhanced dermal delivery.
The main feature of this novel type of vesicle is its soft structure, which enables facilitated delivery into the various layers of the skin as well as into the cells. Ethosomes can efficiently encapsulate the lipophilic tocopherol or the hydrophilic cationic molecule, pyridoxine hydrochloride.
The characteristics of ethosomes were assessed by DSC, DLS, NMR, CLSM, ultracentrifugation and electron microscopy. From unilamellar small or large vesicles to multilamellar entities, ethosomes have a particle size that can be modulated from tens of nanometers to microns. The fluidity of the bilayer lipids seen by DLS is one of the main characteristics of those vesicles.
The use of ethosomal carriers resulted in delivery of high concentrations of active agent to the skin regulated by system composition and their physical characteristics. The delivery of the agent can be modulated to be targeted to the stratum corneum, viable epidermis, dermis, pilosebaceous units and/or intracellulary, as seen by fluorescence methods.
These recent achievements strengthen the belief that cosmetic products will be increasingly designed based on high technology delivery systems.

Normalisation Of Inflammation And Humidity In SLS Perturbed Skin In Vivo By Gel State Phosphatidylcholine.

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The aim of the in vivo investigations presented here was to evaluate the effects of gel state phosphatidylcholine (HPC) on the skin of 15 volunteers irritated by means of sodium lauryl sulfate (SLS). Phosphatidylcholine (PC), the most abundant phospholipid in mammalian cells, possesses an intrinsic hydration force, whereas its metabolites are essential osmoprotectants. PC composed of saturated fatty acids (HPC) is a gel state phospholipid, has physical properties which are comparable to those of the skin permeability barrier. When applied to the skin, HPC is taken up by the stratum corneum (SC) without causing any irritation. As it was reported recently, PC and its metabolites display preventive efficacy in pathological states caused by a redox imbalance and prevent the ensuing formation of oxidised biomolecules.

Skin irritation was induced through application of SLS as a 0.01 molar percentage solution on the volar side of the forearm. The volunteers made use of a plastic foam roller which was rolled over the skin 50 times, 5 times per day. The weight of the roller ensured that a specific amount of SLS was applied on the skin surface. 200 _l of a dispersion containing 1% of HPC (Phospholipon_ 90 H) were distributed on the skin 30 minutes after the application of SLS. The HPC dispersion was prepared by heating 495 ml distilled water to 60°C and transferring it to a high-speed mixer. 5g HPC were added and the mixture was homogenised at 16000 rpm for 30 min. The product was preserved with 0,015% thiomersal and kept at 4°C before use. Skin irritation was measured by Chromameter CR 200, water content in the skin by Corneometer CM 820 and TEWL by Tewameter TM 210. The statistical evaluation was performed by a Wilcoxon pair difference test for combined random samples. The evaluation of the experimental factors took place 12 h after the last application.

HPC formulated in water did not normalise the elevated TEWL. This result is in agreement with the findings of other laboratories stating that the application of products containing phospholipids or ceramides only would not be sufficient for the normalisation of TEWL in perturbed skin. Somewhat in contrast, the water content of SC in the challenged skin increased significantly upon the treatment with HPC. In addition, HPC normalised the inflammatory response of the skin perturbed by SLS.

HPC has distinct effects on skin humidity and skin inflammation in SLS perturbed skin in vivo. The first effect can be explained by the intrinsic hydration force of HPC and the osmoprotective properties of its metabolites. The antiinflammatory effect may be attributed to the preventive efficacy of PC and HPC in redox imbalance conditions in vivo, as reported recently. These findings lead to the conclusion that HPC, or, more likely, some of its metabolites permeate into the part of the dermis where inflammatory processes can be influenced. Consequently, HPC may be used to normalise intracellular humectancy in the SC, ameliorate or prevent inflammation in the skin and, in addition, as a matrix-forming agent for lipids and water, to design products for the treatment of dry, sensitive and inflamed skin.

Calcium And Skin Barrier

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The major function of epidermis is to form a protective layer, the stratum corneum (SC), which prevents the excessive loss of body fluids required for terrestrial life. This permeability barrier resides in the extracellular lipid-enriched membranes of the SC. Three key components of SC lipids, cholesterol, fatty acids and ceramides, are critical for this function. Acute disruption of the epidermal permeability barrier by organic solvents, detergents, or tape stripping initiates homeostatic repair responses that include rapid secretion of preformed lamellar bodies by the granulocytes, accelerated formation of new lamellar bodies with further secretion, an increase in cholesterol, fatty acid, and sphingolipid synthesis, and extracellular reorganization of secreted lamellar body-derived lipids leading to the restoration of lipid-enriched membranes in the SC interstices in parallel with barrier recovery. The barrier recovers normally when perturbed skin sites are immersed in isotonic hypertonic or hypotonic solutions, which indicate transepidermal water loss is not the signal for these metabolic responses. The concentration profile of Ca++ across normal skin has been determined by ion capture cytochemistry (a semiquantitative analytical method) and particle-induced x-ray emission (PIXE) analysis. Prior studies have demonstrated that there is a calcium gradient within the normal epidermis; a low level of calcium ions in the basal and spinous layer, followed by a progressive increase of calcium ions reaching its maximal density within the outer stratum granulosum and declining again in the SC. Perturbation of the epidermal barrier leads to the loss of normal calcium gradients, and barrier recovery is parallel to the restoration of the calcium gradient in the epidermis. In a number of studies, Ca++ has been demonstrated to play a critical role in the regulation of cell homeostasis, in maintenance and repair of the skin's barrier function, and in the control of epidermal differentiation. Furthermore, in chronic forms of barrier abnormality, such as in essential fatty acid deficient mice, topical lovastatin treated mice, and psoriasis, the epidermal calcium gradient is abnormal.

New Aspects Of Sebaceous Gland Function

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The sebaceous gland has been considered by A.M. Kligman as "a living fossil with a past but no future". Increased sebum excretion has been associated with acne development. Although sebum mainly contributes to the formation of skin surface lipids, the latter seem to form no barrier. The composition of sebaceous lipids is species specific and also depends upon the age. The sebaceous glands develop in the 13-15th week of gestation, being highly active during the 3rd trimester and for some months postnatally. Their sebum forms vernix caseosa stimulated by the fetal DHEA activity. Sebaceous glands decline in size and activity by one year of age to rise again with adrenarche and further in the puberty. Current research using newly developed in vitro models has provided proof that the sebaceous gland is a major regulator of skin homeostasis. Human sebocytes control steroidogenesis in the skin and are able to synthesize steroid hormones from cholesterol through regulation of the HMG-CoA reductase and P450scc enzymes. Testosterone strongly inhibits HMG-CoA reductase expression representing a hormonal feedback regulation. Skin androgen levels are associated with acne. DHEA is likely to be the major inducer of juvenile and late acne which usually present with inflammatory lesions. On the other hand, there is no proof for bacterial involvement in the initiation of acne lesions. Human sebocytes express several pro-inflammatory molecules; IL-1 induces cornification of the follicular channel. Concerning the synthesis of skin surface lipids, there is an allocation of duties: Sebocytes produce all fractions of the human sebum, while keratinocytes produce cholesterol and triglycerides. Epithelial skin cells exhibit a own independent inflammation circle. Anti-inflammatory systemic treatment with a selective 5-lipoxygenase inhibitor significantly reduced acne lesions and excreted lipids. Sebocytes possess receptors for neuropeptides, the latter, such as _-MSH and CRH, exhibit an anti-inflammatory activity. Isotretinoin acts as a pro-drug of tretinoin, been isomerized to high intracellular levels of tretinoin in human sebocytes. The sebaceous glands may be involved in the apoptotic pathway of dermal hair papilla cells. The sebaceous glands try to compensate the reduction of their activity with age with gland hypertrophy. They express PPAR which co-regulate lipid synthesis. They are also involved in the activity of estrogens and the delivery of vitamin E to the skin. Finally, palmitoleic acid was found to be an active antibacterial molecule in human sebum. In conclusion, the sebaceous glands have several, currently documented homeostatic functions, among them being the regulation of cutaneous steroidogenesis, the regulation of local tissue androgen levels, the production of vernix caseosa, the modulation of pro-inflammatory cytokine expresion, and its role in hair growth, the aging process and the delivery of anti-oxidants to the skin.

Hair And Nail Structure And Function

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The hair and nail are skin appendages that share with the skin a common origin from the ectodermal layer. They fulfil important protective and cosmetic physiologic function. After intrauterine life, hairs are divided, by size in two major types: vellus and terminal. Terminal hair is described as being substantial or large in size with a diameter of about 60_m. The scalp hair is a typical terminal hair. Vellus hairs are smaller, more lightly pigmented and the diameter is less than 30_m. The hair has a growth cycle consisting in different phases: anagen, telogen, catagen.
The nail provides protection to the distal digit as well as aesthetic adornment and dexterity. Hair and nail disorders have a deep impact in the patient self-confidence and relation life. A vast spectrum of nail or hair alterations can be observed during the course of systemic disease although a causative association is seldom proved. A deep knowledge of the structure and physiology of the nail is necessary to correctly approach the pathogenesis of nail disorders.

Permanent waving, dyeing, or hair straightening. How to identify, repair, mask, or prevent the damage

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The paper reviews the chemistry of reactive hair treatments and outlines the effect they have on the surface, mechanical, and optical properties of hair. It considers the methods employed to identify and quantify the extent of hair damage. Techniques such as static mechanical methods, texture, combing, color, and luster analysis are presented and the latest results are critically reviewed. The use of Image Analysis to quantify luster of intact and damaged hair is stressed. Also, the use of the measurements of mechanical strength, bending, and relaxation to assess extent of hair structure modification is discussed.

The paper also presents the overview of treatments, which are employed to repair, mask, or prevent hair damage during reactive treatments. The performance characteristics of products such as rinse-off and leave-in conditioners, conditioning shampoos will be pointed out. The role of various types of raw materials such as cationic surfactants, cationic polymers, and silicones is discussed and structure-property relationships are delineated. The role of novel materials, such as hydrophobically modified cationic polymers, or cationic polymers prepared as a result of water-in-oil emulsion polymerization process is presented. It is demonstrated that hydrophobically modified polymers display properties intermediate between cationic surfactants and polymers.

The paper will also include a discussion of the new concepts in hair technology such as the employment of free radical scavengers, antioxidants, UVA photofilters, as well as reactive conditioning agents.

Nutriceuticals in hair and nail treatment

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This presentation will discuss the role of vitamin and mineral supplementation in the treatment of hair and nail disorders.
Although evidence-based data about efficacy of nutri-ceuticals are still lacking, available information indicates that these may improve some hair or nail disorders.
Choice of the optimal product should take in account the specific disorder.

Telogen effluvium: supplementation should include iron and sulphorated aminoacids. Avoid Vit A.

Androgenetic Alopecia: choose products containing phytosterols and antioxidants.

Hair shaft fragility: supplementation should contain sulphorated aminoacids.

Nail fragility: utilize products containing biotin and iron.

Active cosmetics in hair and nail treatment

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The cosmetic product is multifaceted: it can be "active", it can be "decorative", it always will endeavour to be "effective", to cause "pleasure", to adapt to the life style of the consumers. Also, the development of new capillary products is indissociable from the concept of multidisciplinary. The knowledge of cutaneous biology and the comprehension of the mechanisms which regulate the pilar cycle contribute to the development of effective products that can reduce the hair loss and so to bring solutions to a physiological problem. The knowledge of the mechanisms of physio-pathological deterioration of the hair makes it possible to create new ingredients that are able to interfere in the hair loss and hair growth processes. The synthesis of new artificial substances or their extraction from natural products open a large field of investigations for the development of new hair care products. A similar approach is of value for all the nail cosmetic disorders. As an example the results of the research in the domain of ethnobotanic sciences, and in the old pharmacopoeias, looking for ancestral therapeutic recipes, are considerable sources of new chemical entities. New physicochemical technologies in the cosmetic formulations (which corresponds to the galenic form for a drug) lead to the optimisation of the active ingredient delivery to the hair or the nails. Depending on the harmonious raw materials organization, the finished product will be perceive positively or not by the consumer during the first use, before even imagining the advantages that the product will get to him. This first impression, during the first use, is responsible for the observance which is essential if a real clinical effect is expected. The texture, the sensory evaluation (to touch, to smell, to see) are as much of parameters that the formulator will optimize and for whom new raw materials (without effect on the physiological mechanisms) and new technologies are essential. The cosmetic product is not only any more one emulsion or a lotion or a nail lacquer, it associates powerful technologies of sustained release delivery through microencapsulation or the use of nanoparticules and liposomes. This research in the field of the hair care and nail care is essential to support the concept of real active cosmetic products.

Study of the effects of the cosmetic treatments on the hairs by means of the Atomic Force Microscopy.

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Atomic Force Microscopy is an investigation technique particularly suited to study hairs mainly since their surface topography show features (dimensions and difference in level of the details) that match very well the typical performances of this technique. Furthermore an Atomic Force Microscope (AFM) can give information that the other commonly used microscopy techniques are not able to yield.Operating an AFM in the laboratory of the Institute a research has been undertaken concerning the changes that the general cosmetic treatments such as washing,permanent and dyeing produce to the hairs.In particular the caused damages,the means to limit damage during treatment and the possible actions to recover the best physiological conditions after treatment are investigated.In this way it is possible to characterize the effects of several parameters such as the temperature of the process,the concentration of the active principles in the used solutions and the treatment rate.It is a matter therefore of an investigation aimed primarily to test and to compare commercial products and procedures.

Experiments are performed using both hairs never treated before (as a reference) and hairs that have been subjected to many cosmetic treatments previously.

The first results of the studies are given and discussed: they point out that actually the AFM can give at present the more accurate and detailed information concerning the topic.

It has to be stressed that the above investigations do not exhaust the potentialities of the AFM as to the problems that the beauty treatment factories must face in the formulation of the trade products.

A Natural Way To Treat Acne

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Acne is a multifactorial disease that commonly occurs during adolescence with the production of testosterone and activation of the sebaceous glands. The driving forces for the development of acne are the increase of sebum secretion and the ductal cornification of the philosebaceous duct and its inflammation is probably mediated by the neutrophil-derived reactive oxygen species.
Numerous medications both topical and systemic, sucb as benzoyl peroxide, retinoids antibiotics and antiandrogens, are available . All these products have however, some side effects.
Recently, first evidence has come up that natural treatment of *acne vulgaris* by phosphatidyl-choline from soy beans with a high content of linoleic acid seems to be very effective in normalization of this disease.
This therapeutic strategy with no-controindications in summer time, normalizes the reduced linoleic acid content in the sebum, as postulated hypothesis by Downing et al. 15 years ago.
The activity of this natural compound will be discussed.

The hair in childhood and old age

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This paper will not focus the problems oh hair diseases related with genodermatoses. These abnormalities are numerous and varied but such diseases are rare and the patients are generally cared in special centers.

The other causes of alopecia [1] or hypertrichosis [2] are listed in Table 1a, 1b and in Table 2a, 2b. Hypertrichosis, that is an excessive growth of non-androgen-dependent hair, may be localized or generalized, congenital or acquired. More than 20 syndromes, most congenital, have hypertrichosis as a feature. Not taking into account large congenital melanocytic nevi that may be hypertrichotic and at increasing risk for developing a malignant melanoma, hypertrichosis has been reported in association with many acquired diseases (Table 1b) and numerous medications (Table 2b) some of which, as cyclosporine, can be administered also in children.

Vashi et al. [3] have reviewed generalized and localized symmetrical hypertrichosis in children in a case series of 11 prepubertal male and female (7F, 4M) patients who had idiopathic hypertrichosis. While four patients showed the generalized form the other 7 had the localized one. All patients with generalized form manifested the condition at birth while in the other group the age of onset ranged from birth to 4 years. One girl with generalized hypertrichosis had gingival hyperplasia and the girl with faun tail deformity had bony diastematomyelia with spina bifida occulta. Primary hypertrichosis, although rare in children are benign in most cases, but may result in cosmetic disfigurement and psychosocial trauma for patients and families. A dermatologic and pediatric assessment is necessary in all cases to rule out associated diseases.

It should be remembered that lanugo hair (that is the fine, thin, lightly pigmented hair that covers the human fetus that is normally shed before birth) as hypertrichosis lanuginosa can occur in otherwise healthy individuals but can also present associated with polymyositis and as a rare paraneoplastic condition (colorectal cancer in women and lung cancer in men). Hirsutism (the excessive growth of androgen-dependent hair in a woman) can be idiopathic, but often can be associated with an adrenal or ovarian cause. Thus all women with abnormal menstrual cycles or with severe or sudden-onset hirsutism require careful evaluation. More, growing evidence has linked hyperandrogenism to increased risk of cardiovascular disease, genital tract neoplasia, and non-insulin-dependent diabetes mellitus.

An interesting application from the study of hairs comes from the investigation on oligoclements. As far it concerns the problem of neural tube defects it is known that folic acid supplementation has reduced the incidence of this event. Since it is known that zinc deficiency can provoke this defect in animals, a recent study [4] has investigated the zinc status of eighty newborn babies with neural tube defects and their mothers compared with eighty apparently normal newborns and their mothers. Serum and scalp hair zinc levels were analyzed by atomic absorption spectrophotometry. The hair zinc levels, but not the serum levels, of the affected babies and their mothers were significantly lower ($P < 0.001$) than the controls. Thus this study has found association between neural tube defects and decreased hair zinc levels, suggesting to investigate whether zinc supplementation would reduce the

overall incidence of this defect.
As far it concerns the color of hairs, the recent paper of our group [5] has demonstrated that heterochromia of the scalp hair can be a sign of pigmentary mosaicism even without underlying recognizable malformations.
The present development in the treatment of some forms of alopecia is due to the elucidation of pathogenesis of androgenetic alopecia, especially with regard to the role of 5_ reductase. After the first specific antagonist drugs, second generation steroidal 5_ reductase inhibitors, such as GI-198745 (a combined type 1 and type 2, 5_ reductase blocker), W09704002, Turosteride, Mk-963, MK-434, Episteride, and MK-386 have been developed and are undergoing further investigation as are a variety of non-steroidal inhibitors such as zinc and saw palmetto [1]. The possibility of gene therapy for androgenetic alopecia has been advanced in animal (mice) by the development of a topical cream containing liposomes capable to deliver entrapped DNA to hair follicles. The study of the stem cells of the hair follicle will give us new possibilities of treatment in the future.

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Fish Polysaccharides in the Treatment of Skin Ageing

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Antiageing products are used to bar various signs generally attributed to senescence, which develop from two different events characterised by specific peculiarities known as chronoageing, or intrinsic ageing, and photoageing, or exstrinsic ageing. Young people, in particular, is very concerned about ageing condition and preventive approaches to reverse or slow down its manifestations, especially in view of a prolonged lifetime and an intensification of social relations are available mainly for the extrinsic ageing process, which in fact seems to be responsible for the 80% of facial ageing.
Topically applied cosmetic products can be helpful in improving aged skin condition.
The role of oral supplementation in the treatment of aging skin is a new exciting area of development. Fish polysaccharides, when taken orally, are reported to be effective in treating photo-ageing (with particular regard to elastosis, and wrinkles) and chronological ageing (especially as to the thinning of the skin). Their mechanism of action is still basically unknown: previously reported data suggest a possible role in promoting collagen synthesis and in particular procollagen and Type III collagen which stimulate repair processes within the dermis. The high content of mucopolysaccharides can improve dermal ground substance thus improving skin mechanical behaviour and skin thickness. Published studies reported clinical improvement of skin ageing and of some biophysical parameters such as thickness, microcirculation, TEWL and wrinkleness. In particular, when taken orally at a dose of at least 500 mg in combination with flavonoids and antioxidants, they seem to exert a thickening effect at the dermal level, with significant reduction of deep lines. From a mechanical viewpoint, a significant increase in viscoelasticity is detectable as compared to placebo treatment. This seems to be a peculiar marker of their effect on the dermis. In conclusion, oral supplementation is effective in reducing skin wrinkling; a combination treatment (oral and topical) can be a complete and integrated approach to the management of skin ageing.

Surfactants And Skin Impact

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Surfactant molecules contain both a hydrophobic and hydrophylic part having the ability to be easily adsorbed at the interfaces depending of their anionic, cationic, non ionic or amphoteric character. Because of their specific physico-chemical behaviour in aqueous solutions, above a certain surfactant concentration, molecules combine to produce micelles.

On the other hand, the stratum corneum barrier of the skin is a compact, structurally heterogeneous, two compartment system, in which layers of protein-enriched corneocytes are separated by a multilayered lipid-enriched extracellular matrix. The stratum corneum forms both a reservoir for, and a barrier to, the penetration of xenobiotics.

The interaction of surfactants with the upper domains of the skin can follow different ways, depending on the chemical nature of the surfactant: from the molecular and physico-chemical adsorption and impairment of the skin barrier until the generation of biological response modifiers and the damage at epidermal level mainly related to acute and chronic irritant contact dermatitis. The assessment of the skin impact due to surfactants can be followed using several specific bioengineering techniques.

New surfactants for innovative cosmetics

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Surface-active agents derived from fatty acids and amino-acids or hydrolysate vegetal proteins are demonstrating an extraordinary cutaneous and general tolerability.
By varying the length of the alkylic chain we have obtained interesting functional properties (deodorant, anti-dandruff, anti-seborrhoea, anti-acne) like with dosodium Caprioyl Glutamate.
Detergent delicacy, defence of the cutaneous acidity, and optimal dermophilia as with sodium Cocoyl Glutamate make these products the best choice for delicate skin cleansing and for children's skin.
Rather than using the negative concept of irritating potential which normally characterised and classified the traditional surface-active we can now have positive dermo-compatible results.

Instrumental evaluation of topical antioxidant activity

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The cutaneous antioxidant capacity can be strengthened with suitable substances applied on the skin. This property as been demonstrated for vitamin E, vitamin C, and melatonin specially when applied in combination. On these bases we evaluated the protective capacity of a skin care product containing a mixture of lycopene, a-tocopherol and ascorbic acid. Twenty healthy volunteers with phototype II or III were irradiated with solar simulator (Multiport Solar UV Simulator, Model 601) on the flexural surface of forearm with doses ranging from 20 to 80 mJ/cm2. The product containing antioxidants was applied on an area with similar characteristics which, after 30 minutes, was irradiated with the same UV doses. Skin evaluation was performed before UV exposure and after 24, 48 and 72 hours. Erythema was measured with tristimulus colorimeter (Chroma Meter CR-200, Minolta) according to our previous experience. The barrier function was evaluated with evaporimeter (Tewameter TM 210, Courage-Khazaka). The antioxidant mixture revealed a protective capacity against UV exposure demonstrated by paired t-test performed on a*-values in the L*a*b* system of Chroma Meter.

New Trends Skin Care Market

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"Body skin, whether *aft or fore,* receives little cosmetic attention in so-called *civilized* modern man beyond a dust of talcum powder.
Only that skin which is generally viewed, touched or sniffed is a major recipient of skin care. It is not, therefore, the physiological function of our skin which is our concern but its role in communication."
This was officially declared during an International Meeting from the famous dermo-physiologist John Ehling member of ISCD, twenty years ago. Therefore "for our own satisfaction it is necessary to believe that by caring for the skin we can preserve it, and keep it more normal than normal".
As matter of fact, to perform its sexual and social functions, skin needs to book, feel and smell attractive. For the earliest records of human bathing and being care of (treating) the skin has always had important social religious and allegendly curative as well as hygienic significance.
Today cosmetics are used by increasing numbers of people and very large quantities are consumed each year witb the same and main purpose, to enhance attractiveness, to improve self –esteem to protect skin and hair from damaging UV light, pollutants and other environmental factor and in general prevent aging.
For the reasons all these problems will be evaluated and discussed. It is necessary to increase research and studies for the development of more active cosmetics with even better pharmaceutical properties, capable to really prevent, for example, formation of wrinkles or promotion of hair growth.
Contemporary it seems also necessary to study more deeply the crucial difference between adults and infant skin, for developing cosmetic products with no more possible effects. The need for caution in the use of topical agents in infants is stresses, particularly of chemical and botanical compounds which may have potentially harmal systemic effects because of the relatively greater percutaneous absorption than in adults.

The Skin Conditioning Activity Of Petrolatum, Mineral Oil, And Specialty Hydrocarbon Gels

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Because of its occlusivity, petrolatum is widely known as an outstanding skin moisturizer. This material is often used as a standard when evaluating other skin care products and ingredients. However, less is known about other hydrocarbon materials, despite the fact that tests on these products have been reported. Penreco recently has developed a technology to create anhydrous gels of varying viscosities for a number of uses, including skin care. It was found that by gelling hydrocarbons, some interesting skin conditioning results are obtained, including dramatically improved moisturization when compared to ungelled oils. This paper will report how petrolatum, mineral oil, and several specialty hydrocarbon gels affect the skin and its properties, as well as reveal the extent to which these materials condition and improve the overall health of the skin. This will be done through a review of the literature and a report of the results from clinical and laboratory tests.

Endocosmetic Treatment Of The Skin

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Recently has acquired a particular importance a new subject of the pharmacology: the *endofarmacologia*. This bases itself on the stimulation of the organism to form a determined product by means of the administered of tall concentrations of the precursor of the same.
Now propose is wanted the same beginning giving beginning to a new space of the cosmetic: the *ENDOCOSMESI.*
That is the use of cosmetic containers wants to be stimulated the beginnings precursory assets of important substances of our skin. The administer of the first allows the optimization of the production of the seconds allowing an amelioration of the cutaneous physiology.
Any examples clarify this concept: the administered of *glucosamina* stimulating the production of *glicosaminglicani* it optimize the cutaneous hydration; the administered of precursory *prolina* of the *collagene* optimizes the consistence of the skin; the administered of *valina, leucina* and precursory *isoleucina* of the acids fat omega 6 optimizes the production of the fat; the administered of precursory *tirosina* of the melanin and they of precursory *istidina* of the *urocanico* acid optimize the bronzing from UV rays with reduction also the harmful effect.
Still a second novelty in the cosmetic treatment of the skin would be proposed: the facilitation to the introduction of the active beginnings through the GLICOLIC ACID.
The principal street of penetration of the beginnings contained assets in the cosmetic are that transcell, that is by means of the passage repeated to the inside and to the outside of the cells that they constitute the epidermis. E' therefore obvious that the reduction of the thickness of the horny obtainable with the application on the skin of glicolic acid, determining a reduction of the thickness of this, you/he/she/it facilitate the penetration of the active beginnings.
A cosmetic integrated based system on the initial application of a gel to the glicolic acid to which it follows the application of the cream container the beginnings moisturizing assets or fat return and a sun block in moisturizing base for protect the skin during the day.
The endocosmetic treatment comes succession in winter and it however is suspended 15 days before the solar exposure.
In the period of exposure consult the use of a solar product to filter selective UVB with to the inside products of stimulation of the melanogenesis (*tirosina*), of the production of the urocanico acid (*istidina*) and anti oxigen radicals (SOD, catalasi, E and C vitamin) in a moisturizing base.

The Enzyme Catalase To Prevent Skin Damages Caused By Physical Stress

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Experimental and clinical research carried out in the last years have allowed to highlight how cells or tissues exposed to species reactive to oxygen (free radicals and other active molecules, like hydrogen peroxide and NO derivates) can cause important modifications of the structure, function and metabolism of many tissues. All these reactive species are produced during the physiological activity of the mitochondrial respiratory chain, during the transportation of electrons at the level of the endoplasmic reticulum and for the activity of some cytosolic enzymes.
Oxidative stress, meant as an uncontrollable increase of free radicals production is a mechanism which can be increased by extreme conditions that often occur during some sports activity.
Extreme climatic conditions, such as wind, humidity, height, composition of the atmosphere together with a prolonged exposition to ultraviolet radiations when practicing outdoor sports activity can represent a series of causes which, together with a predisposition to traumas and inflammations, can cause cutaneous heavy and chronic pathologies.
With its highly differentiated structure, the skin is particularly vulnerable to the attack of free radicals, due to its direct contact with oxygen and other aeriform elements and to the response to environmental stimuli. Some cutaneous pathologies, like piebald skin find their aetiology in the action of the free radicals. It is also well known that sports can cause viral, bacterial, mycotic or parasite cutaneous infections. Furthermore, the specific conditions where the sport is practiced, together with age and genetic predisposition can influence their appearance.
On the other hand, the skin can he easily protected with the topic application of anti-oxidant products, prepared according to the biological characteristics of this substratum.
In a collaborative research carried out in this sector, we have focused our study on molecules that could selectively degrade the most dangerous free radicals without interfering with the normal metabolism, and with such aim we have synthesised a stable compound in our laboratories, with a low molecular weight, between helicin and a bivalent manganese salt.
This compound present a steric structure similar to the prosthetic group of oxido-reductive enzymes and, once tested in vitro it has proved to have catalasic activity and superoxide dismutasic because it catalitically degrades both the superoxide anion and the hydrogen peroxide which is formed for reaction.
Some proprieties of this compound, fundamentally the non proteic nature together with the capacity to selectively inactivate the superoxide radical make it suitable not only for therapy, but also to clarify the mechanism of action through which free radicals are the cause of complex cutaneous pathologies caused by damages due to stressing physical activity.
Other than a minor cost, the advantages of the use of proteic catalasis are stability, effectiveness and uniformity, together with the total lack of immune reactions.

A new therapeutic approach in the treatment of photoaging: our experience

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Photoaging is a degenerative process characterised by cutaneous alterations induced by chronic and extended exposure to UV rays that cause certain recognisable pigmentary alterations on the photo-exposed skin: sun ephelides, freckles, lentigo-keratosis, epidermic atrophy and focal hyperkeratosis. The chronic actinic damage is caused both by the direct effect of the sun's rays as well as indirect effect of free radicals that bring about their damaging activity on the DNA, proteins and membrane lipids.

The purpose of our study is that of assessing the effectiveness of the systemic therapy witb polysaccharides of fish cartilage given orally in the treatment of facial photoaging.

We have recruited 26 patients, age ranging from 30 to 50 years, of which 22 females and 4 males. We have excluded from the study all those that showed concomitant skin and/or systemic pathologies. The patients were divided into 2 homogenous study groups by average age and seriousness of the disease: 1st group made up by 13 patients, 11 females and 2 males, who have been treated with 2 capsules a day with a fish cartilage product for a period of 3 months 2nd group made up by 13 patients, 11 females and 2 males that took 2 capsules of a placebo for the same period of time.

The photoaging assessment was performed before the start of the treatment, after 30 and 60 days and at the end of the 13th week of the protocol used, through instrumental measuring of the following biophysical parameters: skin thickness, biomechanical properties (viscosity, elasticity and compliance), microcirculation, skin colour and wrinkle depth.

In the first group of patients treated with the active principle we found a significant statistical increase of the biophysical parameters assessed: skin thickness analysed by means of ultrasounds increased by 8%; viscoelasticity improved by 25% while compliance was reduced by 20% and both were measured with the help of an elastomere. The microcirculation studied with doppler laser velocimetry increased by 50%; the yellow colour of the skin assessed with the help of the colorimeter, as well as the depth of the wrinkles analysed with the image analysis cutaneous replication technique, did not show any significant improvement.

In the second group subjected to placebo treatment we did not find any significant changes.

Prevention of photoheliosis is traditionally based on the use of high-sun protection filters, on the topical treatment that uses products containing retinoid derivatives and alpha-hydroxy acids and on latest systemic products such as polysaccharides derived from sea-fish cartilage_.

Although the mechanism of action of the latter is not completely clear _, they seem to stimulate the synthesis of procollagen and of III type collagen _ improving the repairing and restructuring processes of the derma realistically induced by an increased presence of collagen and mucopolysaccharides in the dermo matrix.

In conclusion, our study has underlined from the instrumental perspective, significant improvements of certain biophysical parameters of the skin, with the thinning of deeper wrinkles but no considerable changes affecting the surface microstructure.

Photodynamic therapy (PDT) with topical 5 aminolaevulinic acid (ALA) vs cryotherapy in treatment of recalcitrant foot and hand warts

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Warts are chronic skin diseases caused by the Human Papillomavirus (HPV); these lesions are nodules, papules and epidermic growths localizzed on any part of body, usually on hands and feet.The size of the warts vary from a grain of wheat to a pea-nut. The aim of this study was to investigate the effectiveness of photoydinamic therapy (PDT) followed by red light irradiation compared with cryotherapy.

Treatments were carried out on 40 patients (21 M and 19 F), aged 17 to 40, with recalcitrant foot and hand warts, mosaic warts were excluded; patients were randomly divided in two groups:

- 1st group (18 patients, 8 M and 10 F) was treated with photodynamic therapy (PDT) with topical 5-aminolaevulinic acid (ALA) followed by red light irradiation (ALA-PDT); cream (20% ALA) was applied in a thick layers 3hrs later all warts were irradiated by a red light source.
- 2nd group (22 patients, 13 M and 9F) was treated with cryotherapy.

Both groups had a total 8 treatments at 1 week intervals.

Efficacy was measured by registering and comparing gradualas changes from the initial state of the wart before, during and after treatment (primary outcome measure), by number of warts that vanished, and changes of persistent warts in wart areas.

We valued the total number of each at entry, after 4 weeks and at the end of treatment (8 weeks).

Pain intensity, immediately and 24 hrs after each intervention, was assessed by a five-point scale.

1st group: A total of 90 warts in 18 patients were entered into the trial.

In week 4 the median reduction in widest wart diameter was 65% and vanishing warts were 30, at the end of treatment the medium reduction in widest wart diameter was 90% and vanishing warts were 45.

2nd group: A total of 115 warts in 22 patients were entered into the trial.

In week 4 the medium reduction in widest wart diameter was 45% and vanishing warts were 22, at the end of treatment the medium reduction in widest wart diameter was 60% and vanishing warts were 30.

No local or systemic adverse events occurred in any patient, apart from pain.

Warts cause cosmetic, social and functional problems. A recent alternative therapeutic is emerging now: ALA-PDT.

Some published clinical trial have evalued the effectiveness of this new therapy vs other traditional treatments.

In our study, according with other Authors, found evidence PDT that treatment is more effective than cryotherapy in reducing the number and the total area of recalcitrant foot and hand warts.

ABSTRACTS

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Herbal Medicine For The Skin. Their Chemistry And Effects On Skin And Mucous Membranes

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The human skin can show conditions ranging from simple dryness to severe erythema and scaling. These indications are sometimes accompanied by pruritis, inflammation and also may exhibit an associated oedema that further increases the discomfort. Herbal materials have been selected by an untiring process of 'trial and error' to alleviate these symptoms. This is not a method considered to be at all scientific by today's exacting standards. However, scientific study shows that plants possess a vast complex arsenal of phytochemicals that not only calm, restore, and heal the skin, but also stand up to the scrutiny of clinical trial and pharmacology.

At the simplest level, soothing and emollient herbal remedies are found to contain mucilage, polysaccharides, complex sugars and starch derivatives that relieve dryness and provide a soothing membrane that covers the skin. Protection of the skin hydration is achieved using seed oils rich in fatty acids and triglycerides that reduce transepidermal water loss and so increase skin hydration.

It will be shown that those plants with anti-inflammatory properties often have a high level of flavonoids, those that are used to firm and tone the skin are rich in tannins and those that have cicatrising and vulnerary properties often have a high level of plant sterols.

Often skin healing is compromised by opportunistic infections and in these cases the use of plants can provide a complex array of antimicrobial and antifungal biocides.

In conclusion, whatever the indication, there is a plant containing the right chemical portfolio and proven ethnopharmaceutical history to meet the need.

The Pharmacological Activities Of The Dead Sea Water

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For centuries the Dead Sea has been known for its balneological properties, especially in treating rheumatic and skin disorders. The waters of the Dead Sea "heal all who use them" Sextus Julius Africanus (third century).

The Dead Sea is the world's lowest and most saline lake. It is unique in its degree of salinity and composition, as well as other atmospheric, photo biologic and climatic features. Since the pioneering pilot studies reported by Dostrovsky in 1959, more than 30,000 psoriatic patients have been treated at the Dead Sea, with results comparable to, or better than other established treatments. The favorable effect of Dead Sea spa treatment on various rheumatological disorders is also well known and has been proven by several controlled studies.

The mechanism of the balneotherapy at the Dead Sea is complex, and our knowledge on it, at best, incomplete. The most important, and well-recognized therapeutic factor in the treatment of psoriasis is solar radiation. The ultraviolet radiation is attenuated by transversing an extra 400 m of atmosphere and a haze of water vapor and aerosols overhanging the lake. Consequently, the majority of the erythemogenic UVB rays are filtered out, thus allowing a greater exposure to the penetrating natural UVA rays. Some recent investigations suggest that exposure to Dead Sea water, by itself, exerts a beneficial influence on psoriatic skin and rheumatologic disorders. A recent research indicated that Magnesium bromide can inhibit epidermal cell proliferation of involved psoriatic skin, in comparison to uninvolved and healthy skin.

The Dead Sea spa treatment is an interesting and fascinating example of a natural approach to treatment of psoriasis, other skin, and rheumatologic disorders, utilizing sun, bathing, and rest (physical and psychological).

Education in Cosmetic Dermatology and Medical Aesthetics:New Advancements in Italy

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For the academic year 2002/2003 some Italian Universities start a new and innovative European master-degree to plastic surgeons, dermatologists and other medical specialties as well as physicians who are interested in the disciplines directly or indirectly connected with the study of Cosmetic Dermatology.
The School aims at providing a through theoretical and practical knowledge of a new scientific medi-co-chemical branch: Cosmetic Dermatology and Medical Aesthetics.

Why A School Of Cosmetic Dermatologyand Medical Aesthetic?
Cosmetic Dermatology and Medical Aesthetics have long been neglected by biological and medical research, but it is now largely developed.
This new science has been fostered by the great scientific and technological progress of the last decade. Its development, however, has not been followed by a suitable information strategy aimed at keeping physicians, and health workers in general up-to-date on medical equipment, cosmetic formulations and their use and together their prescriptive aspects.
Therefore, the School aims at answering the many biological, technical and medical questions urged by the use of medical devices, medical equipment and recommendation, formulation, prescription and frequent use of cosmetic products.

Objectives
The main objective of this two-year master is to lay the theoretical and practical basis of Cosmetic Dermatology and Medical Aesthetics as a new clinically oriented science. The attention is focused on the scientific approach on which are based the different medical devices, medical equipment and cosmetic products, as well as on the clinical aspects of their use and prescription.
The School aims at helping the development of the learning faculties and managerial skills of physicians and dermatologists by making specific choices as to objectives and new teaching methods.
In particular, the School has been designed with the purpose of:

- favouring the understanding of the technical and scientific principles underlying different medical equipment the different medical devices and cosmetic forms, raw materials and active principles used in these formulations, as well as of their objectives ;
- improving the connection between the recommendation or prescription of cosmetic products for the face and body necessities and the actual needs of the customer-patient ;
- learning to handle and use the new physiotherapic equipment necessary for a better well-being ;
- increasing the capacity to steadily improve trainees' knowledge through different opportunities, as well as by experimenting different analysis and evaluation methods ;
- enabling trainees to carry out a critical examination of their attitudes, as well as their learning and

operational style ;
- widening the knowledge of modern interpersonal techniques.
- Learning to use the different way to use medical devices such a injective collagen, hyaluronan and skin fillers in general.

The School aims, therefore, at giving the necessary and basic scientific information, together with a specific sensitivity and an actual "training" in the rational use of different medical devices, medical equipment and cosmetics, on both healthy and unhealthy skin.

The Global Structure

The School includes a series of intensive seminars, with a limited number of trainees staying at the School for a week or for more week-ends.
All the seminars are followed by periods devoted to individual investigation of treated subjects through reading and research. This enables trainees to intensely experience learning.

As for "full immersion" courses in foreign languages, trainees take part in information processes, where the main task is listening, as well as in training processes, which call for commitment, action and participation.
This aim is mainly attained through individual study, exchange of experiences and their critical evaluation, practical learning of new methods of analysis, and training in facing different realities.
This Italian University School is now a new European realty.

Tibetan Medicine Tested By Science: A Botanical Treatment For Peripheral Vascular Disease (PVD)

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The botanical formula Badmaev No. 28, which originated in Tibetan medicine, provides an instructive example of how a nutriceutical has evolved from an ancient concept into a contemporary application through scientific research. This developmental pathway has led to a standardized nutriceutical with clinically proven efficacy in the treatment of a form of atherosclerosis, peripheral vascular disease (PVD). During the 1970s systematic scientific investigation begun in Switzerland and resulted in six double-blind clinical studies on the cardiovascular use of this formula. The formula's mechanism of action has been described in Tibetan tradition, based on three groups of botanical and mineral ingredients: (1) main acting ingredients, (2) auxiliary ingredients, and (3) components that moderate the action of the first two groups and facilitate gastrointestinal absorption of the formula. Based on the preclinical, clinical and laboratory studies several mechanisms of the formula relevant to alleviation of the pathomechanism of PVD have been discussed; for example, increase in threshold for platelet aggregation, lowering total blood cholesterol level, lowering levels of low-density lipoproteins (LDL) while increasing levels of high- density lipoproteins (HDL), and prevention of lipid peroxidation. Also, recently performed studies have shown that the formula can exert actions as a biological response modifier by alleviating vascular inflammation. The latter mechanism may be particularly important in light of the inflammatory nature of atherosclerosis.

The Scientific Basis Of Homeopathy: Efficacy And Cost-Effectiveness

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Homeopathy comes from voluntary experimentation of substances on a sound individual and on the list of all the secondary psycho-physical alterations.
The therapeutic application of these observations is the exhibition of drugs whose psycho-physical toxicology results similar to exhibition when symptom of disease is present, in diluted doses so as not to provoke a worsening of the pathology. In other words, a kind of individual vaccination ante litteram.
Dilution and succussion are the ways of preparation.
Pharmacogenomics confirms the individuality of the homeopathic therapeutic applications. Individual approach and study of the ways of manifestation of the pathology determine a singular doctor-patient relationship, which is typical of homeopathy.
Individual constitutional research leads to the predictability of the pathological responses on the organ and the target function related to stress.
The number of Avogadro over 12 CH in homeopathic dilutions confirms the lack of molecules in the diluted substance.
On the other hand, hormesis confirms how little dilutions can lead to an easy reaction.
Pheromones in fishes, for example, seem to confirm the reality of ultra-dilution in nature.

The Use Of Taila And Medicated Taila In Ayurvedic Medicine

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Ayurveda is one of the most ancient systems of medicine in the world and its origin goes back to the sacred Vedas which are considered the oldest scriptures on the human wisdome and civilisation.
The object of curative treatment in Ayurveda is to restore balance of dosas because according to Ayurveda a disease is nothing but a state of imbalance of dosas or loss of equilibrium or the homeostasis. Dravyaguna is the pharmacology, Dravya is the material which is used as diet or drug, Guna is the physical properties. Ayurveda advocates the local and oral use of a number of drugs in the form of medicated oils or simple oils. This kind of formulation is used in case where oil is needed as a vehicle or for oleation effect such as for abhyanga, massagge, or other treatment or in case of drugs which possess active principles soluble in oil. The rational Ayurvedic treatment is carried out in two parts: Samsodhana or purificatory therapy and Samsamana or curative treatment.
The Samsodhana therapy also popularly known as pancakarma therapy aims to purify the body from gross to subtle levels and clean the channels of the body to enable free flow of nutrients, medicaments and metabolites. The living human body consists of innumerable channels, srotas, that should be cleaned by samsodhana. This samsodhana is considered a prerequisite for all kinds of medications and therapeutics interventions and it is practised in two forms:oleation,fomentation and massage where a ayurvedic doctor uses oil or medicated oil, external purification measures liquify the impurities and push them to kosthas or gross channels. Internal purification in the major intervention and consists of vamana,virecana,anuvasana vasti(oleus enema), ecc.
Samsodhana:mode of action:

- Lipoid substances wich are similar to the cell membrane lipids and get directly incorporated into the cell membrane...
- Some of the lipids substances directly reach the cytoplasm through the cell membrane...
- Application of heat after the snehana causes the generation os a temperature gradient across the cell membrane.Bisides facilitating the diffusion of lipid substances trough the cell membrane this pays key role in the formation of lipoid vesicles from the drop outs in tbe membrane in areas of low temperature.This causes an expansion in the cell volume as well as the surface area.

For this work it's a CD-rom that will display the use of oils in pancakarma therapy.

Ayurveda and Nutrition

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Ayurveda is the ancient Indian traditional medicine distinguished by its preventive features, it is science and art of healthy living, it provides for each individual specific nutritional guidelines and life style aiming in order to reach and maintain the mind-body balance preventing thus the onset of diseases.

According to Ayurveda each individual is the unique expression of the combination of three fundamental principles (dosha): **Vata, Pitta** and **Kapha** whose prevalence identifies the various constitutional typologies influencing our personality and physiology.

The dosha's balance could be considered as a natural order and when it is disturbed derives an unbalance seen as disorder. Health is order, disease is disorder. Organisms are a continuous interaction and alternance between order and disorder, between balance and unbalance.

Ayurveda defines health not only as a disease-free condition but also as a complete physical, psychical and mental wellness that can be reached when the s are in balance, the digestion and metabolism are efficient and the body tissues work correctly, the wastes are properly eliminated, and mind, senses and conscience are in harmony.

Wrong habits, lifestyle, alimentation, stress and emotional repression are at the origin of dosha imbalance and tbus of metabolism and tissue physiology alteration that leads to production and accumulation of toxins called Ama.

These toxins will progressively influence the organism at every level, bioenergetic, immunitary and metabolic leading to the full expression of disease. A disease is expression of toxins accumulation whose description matches the characteristics of free radicals, and it is worth noticing that ayurvedic drugs and therapies have a potent antioxidant effect.

One of the main concerns of Ayurveda in order to keep the balance and the natural order of the organism is proper food intake and digestion, through detailed nutritional guidelines tailored to match the specific needs of each person according to the individual constitution.

Substances are classified according to their effect on the doshas (i.e., their effect on the body) when ingested. Ayurveda teaches that any substance can be used as medicine, if the dose and method are correct. Foods are those substances that nourish the body and mind. Medicines are those substances that assist digestion, thereby promoting good nutrition and the removal of toxins. Poisons are those substances that block digestion and/or prevent nutrition.

Botanicals In Cosmetics: A Critical Discussion

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Herbs and their extracts are used in cosmetics for their functional properties on the skin and. This represents a highly expanding sector of production, i.e. functional phytocosmetics, which should be subject of interest for the aims of this congress.

First of all, it is necessary to take into account the general rule according to which cosmetic effectiveness must be object of demonstration by the manufacturer. It is worth defining the concept of global functionality, that is the contribution of all ingredients to the cosmetic effectiveness and pleasantness of its uses. Furthermore, we must note the substantial difference with drugs that keep the individuality of the active substance supported by an inert excipient. In fact, the need of a scientifically provable global effectiveness is the basis of the new terminology "cosmeceutical", that as well as including the classical definition of cosmetics, uses new expressions and trends for "skin care" functionality (antiradical action, skin firming increase, horny layer inhibition, TEWL decrease, barrier function increase, kerato-active action, vasoactive action, cosmetic "lifting" tension effect, depigmenting action) now that cosmetics is gradually moving its attention from product preparations to skin.

For this reason a phytocosmetic should be defined by the functional properties of its ingredients, especially vegetable ones present in significant quantities.

Unlike this, though, vegetable ingredients, even if specified on the packaging of the cosmetic or suggested in the product's presentation through images and expressions referring to the vegetable world, have purely a commercial aim designed to attract the customer's attention and imagination, thus focusing his/her choices on those natural products, following a trend that seems to be a revenge against disappointments and damages caused on human and environmental health by an exaggerated use of products based on synthetic substances.

Due to these factors, there is a need of standardized preparations for all phases regarding vegetable crude drug products first, and secondly for phytoextracts preparation and preservation and quality control through a series of checks carried out on pharmacognosy basis including chemical-physical, chemical and microbiological tests verifying the chemical composition and the purity and stability of raw materials and extracts.

The above discussed considerations have highlighted the need to promote and improve knowledge regarding vegetable extracts in research activities and standardization carried out by the Cosmetic Products and Personal Hygiene Sub-committee of the Technical Commission (MD January 14th, 1985), now being carried out by a working group named "Vegetable Extracts in Cosmetics" including members from industries, universities and public administration experts.

Comprehensive details of the study and the achieved results are described in the following report.

Botanicals For Innovative Cosmenutriceuticals

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A remarkable new phenomenon is occurring throughout the world: older ages are becoming far more common; and in several countries the fastest growing age group is the oldest. Many fears about aging are related to the concept that everything declines with aging. In fact, a number of important physiologic variables do decline with aging mainly affecting central nervous and cardiovascular systems, and also the skin. Cutaneous aging is a complex biological process affecting various layers of the skin, but the major changes are seen in the dermis. There are two biologically independent aging processes that occur simultaneously. The first is intrinsic aging and affect skin as it probably affects the internal organs. The second is extrinsic aging, the results of exposure to the elements, primarily ultraviolet irradiation. In areas exposed to the sun, particularly the face and the backs of the hands, damage from photoaging is superimposed on tissue degeneration from innate aging. Thus, the most noticeable changes on facial and neck skin, the primary area that patients are concemed about, results from a combination of intrinsic and extrinsic aging processes. From a biochemical standpoint, photoaging is thought to be provoked mainly by:? the action of some proteases, mainly metalloproteases, overproduced by keratinocytes and fibroblasts because of the interaction with ultraviolet irradiation (these proteases are degradative enzymes able to irreversibly damage collagen, elastin and hyaluronic acid, bringing about dermis scars and visible wrinkles);? the oxidative stress, able to eliminate the normal skin antioxidant defences in a very short time. On the basis of these general considerations, it looks clear the need to protect the skin from premature aging by tools able to counteract the action of the proteases on the dermis (increasing at the same time the capability of fibroblasts to produce and release new collagen fibers) and the disappearance of the antioxidant defences from the skin. Even though it is maybe impossible to totally abolish skin damage due to age, on the basis of recent findings it is possible to suggest the use of some active ingredients of botanical origin which, besides to be strong and bioavailable antioxidants, are well known to be vascular protectors and anti-senescence as well. In formulating cosmetic products containing these herbal derivatives, the main problem is to guarantee the better bioavailability possible, in order to be sure that the active principles effectively can reach their site of action: in this case, the dermis. Quite surprisingly, the experience demostrated that both by oral and topical route the vehiculation with the phospholipids can improve absorption of several classes of substances. In the first case, because gastrointestinal absorption is favored when the substance is in a lipophilic form, in the second, because this form is able to enter the skin barrier. So, conceptually there are no significant differences between treating the dermis with a topical or an oral formulation, provided that the actives arrive in a concentration able to give the desired effects.

Significance and role of aromatherapy

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The evolution of cosmetic sciences in the 20° century achieved great innovations, both on the technical field and about the relationship between the human being and the image of himself.
In the years seventies, we counted on a mix of ingredients accurately balanced. Often, we used in a single product thirty different chemical components. Now, we arrived to a deep study of the effects of the cosmetics on the skin, thank to the joint support of different disciplines: chemistry, medicine, bio engineering, and many other. Which improved the knowledge of the complex biochemical mechanisms regulating the relations among skin and active substances.
The new century will be characterised by the study, continuously deepened, of the skin immunology, of the ways to absorb and transport the active principles or to transmit the intercellular messages, with the scientific aim to evaluate the effects and to develop new systems capable to transport and release functional substances. Along this experience, in the cosmetic science appears a new discipline: the molecular engineering.
But the great challenge of the future will be produced by the meeting of different cultures, by the new discovery of popular kinds of medicine, by the modern conception of cosmetic science based on the close connection between beauty and personal welfare, which involves body and mind, causing psychological and physical reactions, with effects on the behaviour. Among the new disciplines of beauty, is developing the Aromachology (a word created in the US in the year 1982), which is accompanied by the more traditional Aromatherapy and completes its knowledge. The first and mode modern one evaluates the relationship (connected to the sense of smell) between the fragrances and the neurological answers caused by their message. While Aromatherapy studies the effects of essential oils eaten, absorbed through inhalation or through the skin. In this way, we are enlarging the field of our studies to all the smelling substances: pure essential oils, fragrances and composite smells (constituted by mixtures of volatile molecules, natural or synthetic). For example, we analyse the potential cosmetic use of the smelling substances able to act on the most important issues related to the achievement and conservation of the human physical and psychical well being. Skin and hairs are in fact the direct expressions of the balance between body and mind, well known by the ancient oriental tradition, toward which the science is making its first steps, with highly encouraging results, unbelievable few decades ago. From the first little cream jar, perfumed and technologically perfect of the seventies and eighties, to the modern cosmetic "nanostructures", more and more important is becoming the emotional effect, scientifically demonstrated, of the pleasure felt in touching the cosmetic products. The smelling molecules, in fact, not only are absorbed through the skin, but also succeed in hitting the vital centres of our brain. Owing to the pleasure and the effectiveness of a well perfumed and soft cream, a new global cosmetic for the man is rising, where the Aromachology can achieve an advanced and important role of development and interest: for the consumers, for the scientific community, for the operators of beauty and well being.

Liposilt Black - A Peloid With Unique Activity Upon Skin Application

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The use of muds, silts, clays and peloids in the cosmetic and spa industry is well known and established. These earth origin materials are often associated with having therapeutic and anti-aging properties in humans. Nevertheless, there is not much scientific evidence to support this perception.
The objective of this study was to generate data on the characteristics of a unique freshwater silt, Liposilt Black (INCI name: Silt), collected from freshwater lakes in Eastern Europe. Liposilt Black is a thinly dispersed hydrated organic multi-component colloid of fresh water sediments that were formed over 30,000 years ago. It is classified as therapeutic mud since it is believed to include high percentages of organic material. It has been formed mainly by the disintegration of plants, animals, plankton, bacteria and protozoa.
Organic material analysis was undertaken to detect percentages of humic acid, carbohydrates, nitrogen and fatty acids. This was conducted using different spectrophotometric, gravimetric and chromatographic techniques. Inorganic material analysis was conducted using Inductively Coupled Plasma (ICP) technique.
The physical characteristics of Liposilt Black were studied using Scanning Electron Microscope (SEM), after the appropriate gold coating procedure.
Clinical studies aimed at substantiating efficacy claims were carried out on Caucasian females aged 30-78, where Liposilt Black was applied to the face by a New York State Licensed Massage Therapist according to standard salon practices. Skin moisture and sebum content were assessed using a Novameter DPM 9003, and a Sebumeter SM810, respectively. Optical transmission of D-Squame® adhesive discs allowed the assessment of macro-changes in the skin surface upon Liposilt application.
Results of the analytical studies indicate the presence of a high percentage of organic material in Liposilt Black. It was found to include 13% humic acid, 18% nitrogen and 27% fatty acids. Surface observation of the peloid showed primarily decomposed organic material with no evidence of crystallinity.
Clinical studies indicated a highly significant elevation in skin moisture and a reduction in sebum content. The Liposilt Black was shown to elevate skin moisture by a factor of 12, and reduced sebum content by a factor of 78.
D-Squame® tape photos showed a considerable modification in skin surface after the peloid application. This change may be related to the moisture content elevation.
This study shows that Liposilt Black is the ingredient of choice to incorporate into cosmetic and personal care formulas that are aimed at treating dry and oily skin. We hypothesize that its unique organic combination of ingredients allows a simultaneous elevation in skin moisture and reduction in sebum content.

The Role Of Shiatsu For A Better Life

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The Shiatsu technique conceived in the '50's by the Honorable Master Tokujiro Namikoshi surely represents one of the most efficient manual therapies for maintaining a healthy body.
In the first years of the 20th Century the young Namikoshi felt that the best method for muscular and joint pain relief was to put pressure along the line of the muscles, tendons and nerves.
During that period, the Japanese National Health System was not as efficient as it is now, and therefore the inhabitants of the cold northern islands used natural and practical methods for pain relief.
Ever since then things have changed, just as the original Namikoshi method has changed and evolved in recent years, mostly due to the Japanese Shiatsu College in Tokyo, now directed, after the demise of Tokujiro, by the Honorable Master Matsuko Namikoshi.
Based on the pressure of the palm and more importantly, the thumbs, the Shiatsu Namikoshi stimulates the nerves and vascular structure of the body, aiding the organism to bring about auto-healing which only the human body posseses.
Very efficient in the various pathologies of the spiue, Shiatsu represents one of the main therapies for the prevention and cure of many illnesses brought about by the stress of today.

Olive Oil As The Fundamental Component Of Nutrition

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Olive oil has been used as food, drug and cosmetic by the Mediterranean populations for over 6000 years. Such interpretation, based on intuition and empiricism, has been fully confirmed by the scientific research, that has proved the validity of its acidic composition and its minor components (present in the extra-virgin).

Successful research has proved that animal fats must be used with caution because of the presence of saturated fatty acids which favour the plasmatic cholesterol and act as starters for some kinds of cancer (colon, breast, uterus and prostate). Vegetable oils must also be used with caution because the polyunsaturated fatty acids of which they are mainly composed (even being indispensable for the organism and for the skin in particular) are a target of the oxygen free radicals with consequent peroxidation of the LDL, acceleration of the cellular and cutaneous ageing processes, increase of the dangerous effects of the ultraviolet rays, etc.

Therefore, extra-virgin olive oil is greatly used, because it contains the optimal percentage of polyunsaturated (6-10% linoleic 18:2w 6; 0,3-1,5% gamma – linoleic, 18:3w 3) a scarce percentage of saturated acids (8-15% palmitic, 16:0; 2-5% stearic 18:0), but most of all, it has an high percentage of oleic acid, monounsaturated (18:1w 9) that does not increase the cholesterol levels and it does not undergo the peroxidative effects of the free radicals.

Main interest is currently focused on the high percentage of anti-oxidant agents, that provide a protective activity on a vascular level, in neoplasms, in the ageing process and in the integrity of the skin. Such anti-oxidant agents are represented by the tocopherol (present in the most biologically active gamma form), by the phenolic compounds (in particular hydroxy-thyrosol, oleoeuropeine, caffeic acid and ferulic acid) and by squalene, a triterpene on which the researchers' attention is currently focused because of its high presence in the cutaneous lipids.

Safety of genetically modified food: toxicological aspects

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Genetically modified (GM) foods are being developed for a variety of reasons, including the advantage of using crops resistant to herbicides and pests, length of shelf-life in the case of supermarket products, efficiency of processing and improved nutritional value. An issue that has been prominent in the current debate on the health risks of GM foods is whether there are adequate methods of testing for the safety of foods. Existing test methods will be presented with major emphasis on the experimental strategy used for the toxicological evaluation of the GM food.

The Italian Bergamot: A Protected Denomination Of Origin (Dop) Calabrian Essence For Beautiful And Well Being

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The Italian bergamot essence from Reggio Calabria, in Italy, is now a DOP product *delight for the palate and the spirit.*
The bergamot essence and/or juices are, in fact, used both in pharmaceutical and nutritional such as in the cosmetic field to give particular and unique flavouring (sweetness and freshness) therapeutic and food products. It is interesting to suhlime how is possible to obtain new dishes and cookeries and innovative cosmetics or aromatherapic products using the bergamot essence from Reggio Calabria, rich of 350 chemical components. By its special bouquet has been possible to obtain new food products, such jams, sweets cookies liquors, or elixir, such as the successful *amarotto* and *bergamino* with innovative and very pleasant taste. In this way the increasing world wide demanding of new dishes may be easily satisfied. But this multifunctional essence may be used also to produce innovative cosmetics capable, for example to control the skin flora, such as performed soap or deodorants with strong disinfectant powers. Because of its high antiseptic and antibacterial power, the bergamot essence may be used in the pharmaceutical industry, such as in surgical antiseptics, in odontriatrics, opthalmic, gynaecology and dermatology.
Alternatively has also an interesting use in aromatherapy and aromachology.
Tbe different possibility of use in the nutri-cosme-ceutical field of this characteristic and DOP Italian bergamot essence will be detailed and discussed.

The bioprotective effects of carotenoids - a literature study

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Background
About 600 different natural carotenoids have been identified. Among the most prevalent in the human diet and plasma are beta-carotene, lycopene, lutein and zeaxanthin. These carotenoids are widely used in functional foods and dietary supplements as provitamin A, antioxidant and colorant. It is postulated that through these functions carotenoids may exert a 'bioprotective effect' by reducing the risk of several degenerative diseases, including skin disorders.

Methods
A literature study on the bioprotective effects of the carotenoids beta-carotene, lycopene, lutein and zeaxanthin has been conducted; focus has been on the epidemiological and randomized clinical trials in humans studying the relation between these carotenoids and degenerative diseases.

Results
Epidemiological studies have repeatedly shown that a high intake of fruits and vegetables is associated with a decreased risk of cardiovascular disease and cancer. A diet high in fruits and vegetables is rich in carotenoids, notably beta-carotene, and therefore the effect of beta-carotene was studied in several randomized controlled trials. Surprisingly, these studies showed that beta-carotene supplementation was associated with an increased mortality from lung cancer in smokers. This most probably had to do with the high-risk population (smokers), high dosage of beta-carotene (20-50 mg/day) and the usage of just a single carotenoid and not a mixture. Indeed, several studies have suggested that especially a combination of carotenoids and/or other anti-oxidants (imitating the human diet) may exert a more pronounced bioprotective effect than single compounds. However, the optimum composition of the mixed pure carotenoids is not known (yet). Furthermore, beta-carotene may play a role in preventing sunburn through yellowing of the skin, melanogenesis and its antioxidant function.
For lycopene, lutein and zeaxanthin randomized clinical trials looking at disease end-point are not available (yet). However, epidemiological research shows that a diet high in lycopene is associated with a decreased risk of several cancers, notably prostate cancer. Lutein and zeaxanthin are the predominant carotenoids of the macular pigment in the eye and supplementation of lutein and zeaxanthin might reduce the risk of age-related macular degeneration.

Conclusions
Through their antioxidant function carotenoids may play an important role in reducing the risk on certain degenerative disease as cancer, cardiovascular disease, macular degeneration and skin disorders. Furthermore, studies suggest that multi-carotenoid formulations, e.g. a combination of the pure carotenoids beta-carotene, lycopene, lutein and zeaxanthin, might have a more pronounced bioprotective effect than the single carotenoids.

Effectiveness of Serenoa Repens on hair growth

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Effectiveness of S.R. on hair growth has been tested on 42 volunteers (24 men and 18 women) aged between 18 and 48.
Volunteers have been divided into two groups, both of them have used an association of products: shampoo, lotion and integrator for about three months. A group has used all the products holding S.R. as active principle, the other one has used the same association without S.R.
Trichogram, Phototrichogram and computerized analysis of the scalp (Sebometry, PHmetry, hydration), as well as macroscopic photos, have been practiced on each subject of both groups, before, during and after a three months treatment.
The results of the research show an increase of the hair growth with a reduction of seborrhea in the group of the volunteers making use of the products based on S.R., as well as an increase of the hair sturdiness.

The Activity Of A New Functional Food On Androgenetic Alopecia

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In order to evaluate the importance of the dysmetabolic factor at a follicular level in the pathogenesis of androgenetic alopecia, and to clearly define how much this factor may influence on the involutive process, independent from the androgenic mechanism, the authors have performed a clinical trial on female and male subjects, treated with a specific dietary supplement (Viscaplus^{R}).
The product, containing amino acids, specific amino saccharides deriving from shark's cartilage, sulfurated amino acids, metallic micronutrient, vitaminic cofactors and cytoprotective elements, has been administered for six months to 50 patients, suffering from androgenetic alopecia: among these patients, 23 were young males, with a Hamilton scale grade ranging from I to III, and 27 females (aged up to over 50 years) ranging between I and II grade of Ludwig scale.
The results, evaluated on the basis of clinical observation and laboratory tests (trichogram, pull test and trichometry), show that treatment with dietary supplements can stop or reverse the spontaneous evolution of the disease in 69.9% of male patients and 88.8% of females. The difference between women and men in the results confirms that the efficacy of the specific dietary supplement is inversely proportional to androgenic hormonal influence, and this is considered as a limit of this therapeutic treatment.
Authors suggest, as future work, the clinical evaluation, in a male population, of the dietary supplements associated with a drug, like finasteride, that may decrease the hormonal influence on the involution of the hair follicle.

A New Soluble And Active Form Of Azelaic Acid: Potassium Azelaoyl Di-Glycinate

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The dermatological use of Azelaic Acid are related to its anti-seborrheic, anti-mycotic and anti-acneic properties. However its limits in cosmetic formulations are well known, even when it is used at lower concentrations than the pharmacological ones. Firstly, a high amount is required to be effective. Secondly, being it insoluble at high concentrations, it gives poor cosmetic properties to the formulations, which result to be thick and difficult to spread. Finally its solubilization by adequate chemical methods results in the loss of Azelaic acid content during the stability period, as it decarboxylates.

In order to overcome these problems a new molecule, Potassium Azelaoyl diglycinate, has been produced. It exhibits very high water solubility, anfiphylicity, high specific activity at low concentration, low toxicity and adequate chemical stability and compatibility.

Serial cosmetic efficacy essays with a 3% aqueous solution were carried on informed volunteers. The preliminary relults were very interesting. It proved very effective as a skin whitening agent and a seboum normalizer. In addition, other skin parameters as skin moisturization and some elastic parameters showed remarkable improvements.

As far as concerning applications, a pre-systematic study on all the cosmetic functionalities has indicated the most proper cosmetic form for the formulation of this products.
Finally, complete and finished formulations have been developed for the following activities:
seboum-normalizing
skin lightening
Other synergistic ingredients have been tested as well.

Chitosan Conjugated Cla Gel For Treatment Of Stable Chronic Psoriasis Vulgaris

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A new gel containing Conjugated Linoleic Acid (CLA) used in adult patients with chronic stable psoriasis vulgaris, showed promising therapeutic results. The duration of the study was 4 weeks. Forty patients were included; 20 received in a randomised manner treatment with the new gel and 20 got placebo. The study was carried out as a double blind trial.

Thirty-eight patients concluded the study according to the protocol. The two withdrawals were in the placebo group and were due to detoriation of the disease. The treatment with the CLA gave significant improvements in the psoriasis disease while the results in the placebo group were not significant.

The results were judged through clinical evaluation by the investigator as well as with objective measurements using Dermascan C. It is a significant correlation between the subjective clinical evaluation and the objective measurements.

The tolerability was good in both groups. However, several patients in both groups were of the opinion that the vehicle had a drying effect on the skin. Based on these observations it is recommended that the present vehicle is changed in order to avoid the drying effect on the skin.

Emblica™: A Plant-Derived Antioxidant Having No Pro-Oxidation Activity Induced By Transition Metals

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Phyllanthus emblica is one of the important Ayurvedic (Science of Life) herbs in India, and has been used for over thousands of years for a wide variety of human ailments. The tree is native to tropical southeastern Asia, particularly India, Pakistan, Bangladesh, Sri Lanka, and southern China. In Hindu mythology, the tree is worshipped as Mother Earth and is believed to nurture humankind because the fruits are very nourishing. Our study on P. emblica fruits is centered on the standardization of antioxidant constituents (trade named as Emblica™) and their skin care benefits, as there has been no systematic work done so far in this area. Emblica is distinctly different from other commercially available extracts of *P. emblica* as it is defined to the extent of well over 50% in terms of its key chemical constituents. The low molecular weight hydrolyzable tannins (<1,000), namely Emblicanin A and Emblicanin B, along with Pedunculagin and Punigluconin are the key antioxidant ingredients in Emblica.

To control oxidative processes, i.e. to reduce, if not prevent, their harmful effects to skin, diverse antioxidants can be used to protect skin from photo-damage. Antioxidants are a broad class of chemicals capable of preventing oxidation. However, when a general use of antioxidants is advocated, it is often disregarded that these compounds not only function as antioxidants, but also (intrinsically) have pro-oxidant action (especially, in the presence of transition metals like iron and copper). For example, on the skin, Vitamin C reacts with Fe^{3+} (or Cu^{2+}) to yield Fe^{2+} (or Cu^{+}) and ascorbate radical. UV-A and UV-B radiation induces release of iron in the human skin fibroblasts. Sweat also contains both iron and copper. Sunlight also generates superoxide on the skin and increases the presence of superoxide dismutase, which converts the superoxide to hydrogen peroxide. Fe^{2+} reacts with the hydrogen peroxide to generate the destructive hydroxyl radical and Fe^{3+}, which allows the chain reaction to continue. Vitamin E and many other polyphenolics are also pro-oxidants. In the presence of antioxidants/pro-oxidants like Vitamin C or Vitamin E; there is the potential for a perfect oxidative chemistry ready to take place on skin.

Altering the reduction potential of iron to disfavor reaction with H_2O_2 or blocking available sites on the iron to which H_2O_2 might attach may provide a solution to stop transition metal-induced oxidation. These two principles are important in the design of chelators for skin care use.

Emblica antioxidant, a new entry to the skin care market, has all the attributes of an ideal antioxidant but no pro-oxidation activity induced by transition metals. The key ingredients in Emblica are excellent chelators for Fe^{3+}, Fe^{2+}, Cu^{2+}, Cu^{+} (demonstrated by azide-induced UV shift), thereby eliminating generation of hydroxyl radicals and its detrimental effects on skin. Chelating agent like Ethylenediamine Tetraacetic Acid (EDTA) also causes generation of hydroxyl radical in presence of

H_2O_2. Computer simulation shows Emblicanin A is the primary chelator (occupying four coordination sites), whereas the other three act as secondary chelators (occupying two coordination sites). As an antioxidant, Emblica quenches oxygen-, nitrogen-, and superoxide anion radicals (demonstrated by Deoxyribose, Diphenyl picrylhydrazide, and Hypoxanthine-xanthine oxidase tests) that do happen to form on skin.

Emblica antioxidant has an excellent toxicity profile and has no adverse biological effects to humans. Thus, Emblica antioxidant is a safe, suitable and effective product for use in anti-aging, sunscreen and general-purpose skin care and skin protection products, as well as in color cosmetics. Emblica antioxidant having no pro-oxidation properties may provide a greater value than existing antioxidants either alone or in combination with sunscreens for skin care products of the future.

Use Of Microsponge Technology To Formulate Alcohol Free Anti-Cellulite Products Containing Caffeine + Retinol

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Formulating with Caffeine and Retinol is problematic because of solubility of Caffeine and skin compatability and stability of Retinol.
Stable cosmetcally elegant alcohol free controlled release Anti-Cellulite cream and gel formulations were developed in colaboration with Enhanced Dermal Technologies, USA, using their Microsponge Technology.

Both the formulations were evaluated on 12 female subjects by an external laboratory for efficacy and safety in the treatment of cellulite on thighs.
The formulations were found to be efficacious, by clinical assessment, by self-assessment, by Instrumental Measurements of skin tautness and resiliency, and by retrospective assessments by the Investigator, using the color photographs of the thighs taken at each study visit.

The Effect Of A New Skin Ointment On Skin Thickness And Elasticity

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The present pilot study was carried out in order to investigate a new patented concept for skin treatment. The new concept is intended for use in treatment of ageing skin. The ointment contains Conjugated Linoleic Acid (CLA) and Retinyl Palmitate (RP). Both ingredients are conjugated with the biopolymer chitosan in order to improve water solubility, increase skin penetration and inhibit oxidation of the active substances. A number of studies have previously been carried out with conjugated retinyl palmitate, where the conjugation mostly has been done using b-cyclodextrin.
We included 20 females in our study and the treatment period was three months. Objective measurements of skin-thickness and elasticity were carried out initially and after three months. Subjective observations and scores were performed by the participants themselves using visual analogue scales (VASs) initially and at the end of the study.
The results showed a significant improvement in skin quality both with regard to objective as well as in subjective parameters after treatment with the new ointment. In comparison to previous studies with ointments containing only conjugated RP the effect on skin thickness and elasticity were more pronounced with the new formulation showing an average improvement in skin thicness of 51% and in skin elasticity of 27%. The self-evaluation scores were also highly favourable and significant, and all of the participants would like to continue with the ointment after the formal study was closed. The tolerability of the treatment was excellent and all subjects concluded the study according to the protocol.

Role Of Nutritional Supplement To Modify The Oxidative Stress

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The skin, continuosly exposed to sunlight and environmental oxidizing pollutants is the preferred target of oxidative stress. Evidence suggests that signs of skin aging such as wrinkling, ragging and actinic lentigines, may be connected to cumulative oxidative damage incurred throughout our lifetimes. Since it is well known that UVA and UVB irradiations induces the formation of reactive oxigen species (ROS) in cutaneous tissues, provoking toxic changes such as lipid peroxidation, protein cross-linking and enzyme inactivation. To counteract this oxidative injury skin is equipped with a network on enzymatic and non enzymatic antioxidant systems. The most biologically active antioxidants recovered are tocopherols, ascorbate polyphenols, and carotenoids. All these compounds, administered topically by cosmetics or oral route by diet supplements, have been shown to exert an antioxidant /protective effect in skin or skin cells.

The antioxidant activity of both calibrated diet supplements and topical cosmetic emulsions, depends on the nature, and concentration of the antioxidants used and of course on the absorption/penetration capability of the different vehicles used.

The antioxidant capacity of innovative cosme-nutriceuticals will be evaluated and discussed.

An Innovative Way To Modulate Hair Loss

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INTRODUCTION

It is well known that nourishment which allows hair cells to grow and multiply is ensured by a number of small blood vessels. These blood vessels reach the hair bulb through the innermost layer of the scalp.
Thus, it is crucial that hair cells be well-nourished and oxygenated, especially during the growth stage.
Failing this, hair is no longer "Built up", hair growth stops and wide spread hair loss occurs

AIMS

The aim of the work was to control on the air growth, the activity of a combination of an oral and a topical herbal formulation. A specific research program consisting of close weekly monitoring and a highly structured treatment schedule under medical supervision was used.

CLINICAL METHODOLOGY

A combination of an oral herbal therapy and a special complex of an herbal based topical formulation was evaluated on two hundred subjects (100 males and 100 females).
The topical formulation has special enhancers that significantly increase the rate of penetration into the scalp. On the average, active hair re-growth was noted with the combined therapy in over 90% of patients as early as three months. No further hair loss was reported as early as three months. Long term follow up has shown no side effects and/or unwanted reactions.

CONCLUSION

The results presented here provide evidence of the effectiveness, safety and the high degree of success achieved with this revolutionary modality. This therapeutic approacb represents the latest and most advanced treatment in the management of androgenetic alopecia (hair loss) in both men and women.

Alopecia areata: new therapeutical perspective

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Alopecia Areata is a pathology which reveals a sudden hair loss. It can concern whatever bodily region, preferring, however, the scalp and the beard area. The most trustworthy hypothesis is that Alopecia Areata is an autoimmune disease caused by a cell- indirect answer against one or more antigens, located at level of the distal portion of the piliferous follicle (lower segment). Histological reports show a polymorphous infiltrate made up of lymphocites, macrophages, plasmacytes and eosinophils in perihulbar zone, at a deep dermis level. It is thought that one or more factors can cause the autoimmune process, causing the hair loss when it is in the Anagen phase. Studies about the cell-indirect immunity show a change of the lymphocitarius subpopulation with a decrease of CD8 and an increase of the relation CD4/CD8. In common clinical practice the most employed therapies go from the Anthralin to the Cya, from the local Corticosteroids to the intralesional Corticosteroids, from the phototherapy to the Minoxidil, from the Phsycotherapy to the PUVA-therapy till the sensitizing therapies (SADBE or DFC). The authors have been valuing the efficacy of the various employed therapies taken either individually or in association for several years. In about four years, about 120 patients suffering from different degrees of Alopecia Areata have been valued. The authors assert that the treatment of the patients suffering from A.A. needs of an integrated polyspecialistic intervention, providing for a therapeutic adaptation defined from time to time, strictly connected with the examined clinical case . Moreover we can conclude that it does not exist only an efficacious therapy for all the patients, but the therapeutic success is conditioned by a series of events which varyingly influence the course of the same pathology.

POSTERS

Biomechanical Description Of Skin Surface Hydration By A Suction Method

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Topical formulation frequently include references to eventual improvement of the "elasticity" and "firmness" of the skin resulting from its regular use. This is specially relevant for the skin care cosmetic formulations which, independently from its vocation, often search (and claim) for direct relationships between the formulation's (biological) efficacy and the biomechanical behaviour of the human skin. However, the extremely complex nature of the skin structure and the many complexities involved in the respective technological assessment impairs further conclusion. Although very useful from a practical standing, being widely used as reference methods, the "suction" (negative perpendicular pressure applied on skin's surface) techniques only allow to produce biological descriptors which should be carefully handled and interpreted. On the other hand, the epidermal contribution to the overall biomechanical behaviour of the human skin is not clearly established. However, it is clear that this is the layer where most of those formulation exert their effects. The present work approaches the relative contribution of the superficial epidermis on the global biomechanical behaviour of the skin by a suction method using different probes, thus allowing sifferent layers of tissue to participate on the local response obtained. Data was obtained on healthy young volunteers (n=35) both gender, after informed written consent. All measurements were performed in the volar aspect of the volunteer's forearm and conducted in a controlled (temperature and humidity) laboratory environment. Chosen techniques involved the quantification of the epidermal "barrier-function" and the hydration balance (evaporimetry and epidermal capacitance by the Tewameter TM210/215 and Corneometer CM825 systems, from CK electronics GmbH, respectively) and the biomechanical assessment by the Cutometer SEM474 (CK electronics GmbH) using 2 and 8mm assessment probes. Experimental protocol included several sequential phases involving an overstimulation of skin hydration with water and then with a 10% Glycerine solution. Finally a "stripping" technique ensure the elimination of the most superficial epidermal layers and results comparison. Descriptive statistics and non parametric tests were executed. $p<0.05$ was adopted. Results seems to suggest that epidermis do influences and contributes to the global biomechanical properties of the entire in vivo skin. Thus, these results also seems to suggest the relevance of topical interventions (including cosmetics) aiming to improve the global "functionality" of the skin and finally, underlines the interest in pursuing further technical and methodological developments which help to contribute to understand this complex property of human in vivo skin.

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Can Self Perceptive Skin Cosmetic Type Determine The Efficacy Of Skin Hydration Care?

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It is well known that intra-individual morpho-functional variability that characterizes human skin is primarily dependent from the race, gender and anatomic site. These differences justify many of the intrinsic properties of the skin when expressed in biophysics terms. Beyond the immediate interest that this reality offers to the dermatology and the derma-pharmacy, this knowledge is also very useful to the cosmetic industry to promote the development of "target-products" for different skin care options such as the "facial-care" and the "body-care". Additionally, the industrial view regarding the so called "skin types" has definitively entered in the common habits of the consumer's choice regarding its own perception of skin care. However the demonstration of the (physiological) utility of this strategy is frequently questioned. Thus, the present study intends to approach the relative impact of the "in-use" cosmetic-care assessing, under controlled supervised conditions, by the pharmacist, the relative influence of the anatomical region and skin (cosmetic) on the maintenance of cutaneous health. Experimental data was collected in healthy human women (n=12, 25 to 45 years old) after previously defined inclusion criteria, including informed consent. The experimental methodology was developed (1) at the community pharmacy where, after filling an auto-evaluation questionnaire, visual and biometrical evaluation (Pharma Multi-diagnostic PMD 700) took place, and (2) at laboratory, under controlled environment and technical conditions, involving the evaluation of skin's "water-balance" related variables (transepidermal water loss and epidermal capacitance), superficial lipids (sebumetry), biomechanics (elastometry), and the quantitative analysis of skin surface topography (replicas). Several anatomical sites were considered (face, forearm and leg) and several "skin types" included (dry and normal skin). The same reference formularization (O/A) was regularly applied (2x / day) for 30 days. Measurements (inclusion (t0), 15 days (t15) and 30 days (t30) were performed at all application sites and compared with the contra-lateral zones (no application) serving as (negative) control. A confidence interval of 95% was adopted. Regular skin care improvement was apparent from PMD 700 which detected an increase of epidermal capacitance in the forearm and in the leg during the study. More detailed analysis of laboratory results clearly demonstrated an improvement of the epidermal capacitance in forearm and leg. These were corroborated by other dynamic tests performed in laboratory . These results seems not to depend from the cosmetic class of the product chosen as reference, nor from any anatomical specificity. Moreover, biometrical follow – up seems to provided an useful mean to assist on cosmetic counseling specially considering this activity under the community pharmacy expertise.

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The Ascorbic Acid Stability Monitored By HPLC Methodology (1st Note)

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BACKGROUND

Ascorbic acid, well known as a great reducing agent, is an important cofactor in the enzymatic hydroxylation, fundamental for the endothelial tissue function. It catalyzes collagen Prolyne and Lysine conversion into their related hydroxylated compounds, improving the stability of the relating compounds..

AIM

Ascorbic acid tends to be oxidized, during time, into DHA and THA acids. Recent studies and researches(1,2,3) show that it's oxidability can be retarded due to the addition of some amino acids (L-Try, L- Ala, L- Cys, Gly...). Our activity has been aimed at determining quality and quantity of ascorbic acid, in aqueous solution with Arginine, along a 30 days time length.

MATERIALS AND APPARATUS

L(+)ascorbic acid was from Merck, Jaluronic Acid, ß-glucano, Arginine, Distilled water, Methanol HPLC Varian 9012 Polychrome Varian 9065, Column RP-18.

RESULTS

The addition of some amino acids like Arginine improves the stability of ascorbic acid and extends its oxidation time.

We can verify that along a 30 days time length ascorbic acid concentration is 20% less against the initial

value, i.e. from 0.67 to 0.48 mg/ml.

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Quantitative Evaluation Of Full Thickness Burns Following Skin Grafting

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Skin bioengineering has been progressively applied to many different biomedical domains involving human skin. Plastic and reconstructive surgery is still regarded as an innovation area where the healing mechanisms of several skin injuries, specially those involving the alo-transplant of areas where the organ was totally loss, have not been thoroughly described using this technological approach. These new technological tools seems to provide new insights into these complex mechanisms which can be quantitatively described from the structural and functional analysis of several physiological and pathophysiological descriptors obtained with non-invasive methodologies.

Data is obtained from human volunteers after informed written consent. These volunteers have been previously selected following some specific inclusion / non-inclusion criteria. Clinical evaluation involved the application of a scoring system developed by the authors to describe the pathophysiological evolution of the lesions. This was compared with biometrical data involving (a) structural analysis from High Resolution Sonography (20MHz, Cortex Technology, Denmark), (b) transcutaneous functional variables involving several flow related variables (laser doppler flowmetry obtained with the Oxford Array system from Oxford Optronix, UK, and transcutaneous gases obtained with the TINA system from Radiometer, Denmark), (c) the evaluation of the epidermal "barrier" function (Tewameter TM210, 4, CK electronics, FRG) and (d) the biomechanical recovery of the skin (Cutometer SEM474, CK electronics, FRG). All the evaluations took place at the lesion and donor areas and were compared with the contra-lateral negative (normal skin area) control. Statistical analysis adopted a 95% confidence level.

These approaches seems to offer new practical perspectives regarding the pathophysiology of the process, allowing to complement the clinical appreciation with newly interesting quantitative variables and parameters that may help to detail and contribute to understand the intimate mechanisms involved

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In Vivo Assessment Of Skin Barrier Integrity Following Vehicle Treatment

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The use of transdermal drug delivery is mainly limited by the small amount of drug that reaches the deeper layers of the skin. One way of controlling drug permeation is through the formulation. The use of penetration enhancers is a strategy employed to improve the absorption rate, but there are still few guidelines for their rational choice. The objective of the present study is to investigate systematically the ability to influence drug penetration of solvents commonly used as vehicles in transdermal formulations.

Previous *in vitro* studies have shown that vehicle pre-treatment of the epidermis provides enhancement of drug flux (1). This work is now continued *in vivo* by monitoring changes in the transepidermal water loss (TEWL) and in the skin penetration of methyl nicotinate after treatment of the application site with a selection of representative vehicles. Histochemical changes in the stratum corneum were assessed by skin surface biopsy using cyanoacrylate adhesives.

Skin surface biopsy (SSB) is a technique that uses rapidly bonding cyanoacrylate adhesives to remove a thin layer of *stratum corneum*. Cyanoacrylates rapidly polymerise with slight pressure and moist, forming a bond with similar optical properties to glass. This allows direct observation of the SC specimen by light microscopy. SSB has been used in diverse areas of application such as study of *in situ* microbiology of the skin, skin surface morphology, histochemical characterisation and studies of percorneal penetration (2).

Laser Doppler Velocimetry (LDV) has been extensively employed as a non-invasive method of measuring skin blood flow. It can be used to study the vasodilatory effects of methyl nicotinate on the cutaneous microcirculation and hence address questions regarding skin pharmacokinetics and penetration enhancement (3,4). Skin treatment with isopropyl myristate (IPM), oleic acid and decanol caused a significant ($p< 0.05$) decrease in the time for onset (t_0) of erythema. t_0 can be related to both the diffusion and the partition behaviour (3). The significant lowering of t_0 noted after treatment with these solvents can lead to the conclusion that the major mechanism of action is by lowering diffusional resistance of the *stratum corneum*.

Measurements based on the *evaporimetry* technique, under controlled environmental conditions, have been used *in vivo* to evaluate the efficiency of skin barrier function (5). The results show a highly significant ($p<0.001$) difference in TEWL after pre-treatment with lipophilic solvents such as decanol, IPM and oleic acid, as well as binary mixtures of decanol or oleic acid and propylene glycol.

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Function Visual Loss And Protective Activity Of Lutein

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The typical age-related changes in transparency of the lens causing increase in the scattering of light and decrease in lens transmittance have been ascribed to lifetime exposure to sunlight. This exposure, that causes a thickening and hyper-vascularity on the conjunction, can be exacerbated by other forms of physical and/or chemical irritation such as exposure to smoke, other environmental toxic compounds, chlonine, etc.
Moreover it has become apparent that the formation of oxygen in excessive amounts may play a key role in the cataractogenic process, by initiating lipid peroxidation and other toxic changes, Thus, it had been hypothesized that molecular degeneration and cataract is the result of life time exposure to 400-500 nm wave-lengths, the so called blue-light, resulting in receptor and RPE dysfunction.
Recent scientific data suggest that carotenoids and especially oxygenated one, such as lutein, could play a protective role in the formation of this lesion.
The blue-light damaging activity and the role of lutein as protectant carotenoid will be discussed.

Comparison Of The Impact Of Tape Stripping And Skin Surface Biopsy On Human Skin's Physiology

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Cyanoacrylate adhesives have been extensively employed as tissue cements and more recently to seal small lesions (1). Skin surface biopsy (SSB) using cyanoacrylate adhesives allows a versatile approach to the study of the *stratum corneum*. It relies on the use of methyl, ethyl or octylcyanoacrylate, which rapidly polymerise with slight pressure and moisture to form a very strong optically transparent bond. A drop of the adhesive can be placed on a glass microscope slide that is then pressed against the site to be sampled. After a few seconds the slide is pulled off with a gentle downward motion. It takes with it an intact layer of *stratum corneum*, two or three cells thick and precisely the same on the microscope slide as it is *in vivo* (2). Polymerised cyanoacrylate adhesive has similar optical properties to glass, which allows direct observation of the *stratum corneum* specimen by light microscopy. SSB can be employed in the study of skin surface morphology and microbiology. Additionally, staining the SSB's with different chemicals enables the detection of particular substances or chemical activities (melanin, sebum, sweat). Studies of percorneal penetration have been conducted using SSB and radiolabelled materials. Finally, it can be employed in the study of follicle contents and comedogenicity and DNA analysis.

Tape stripping is a technique commonly used to study the different layers of the *stratum corneum* and that can be employed in permeation studies. This method consists of gently removing the stratum corneum by applying and removing tape from skin areas. Depending on the type of adhesive tape used and pressure applied, different amounts of cells are removed at each stripping. In the literature there are conflicting reports on the number of strippings necessary to remove completely the stratum corneum, ranging from 5 (3) to 100 (4).

Few studies have been conducted to assess the structural and functional changes inflicted to the skin by tape stripping or by SSB. Stripping effects on the skin can vary from minor functional changes to an obvious inflammatory response, with release of prostaglandins and interleukins if applied as a standardised trauma. The purpose of this study is to identify and compare changes in the skin physiology induced by both techniques. Alterations were focused on basic structural related properties, involving sonography (20 MHz High Frequency Sonografy) and other skin surface analysis (macrotopografy), epidermal barrier function (by transepidermal water loss assessments) and blood flow related changes (by Laser Doppler velocimetry and chromametry).

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Are Transepidermal Water Loss And Epidermal pH Influenced By Local Cutaneous Flow Condition?

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Transcutaneous indicators research has progressed, specially in last few years, leading to new assessment technologies proposals. These also provided new application perspectives to many different biomedical areas allowing a more practical and detailed description of several physiological properties. This is the case for transepidermal water loss (TEWL) which is actually regarded as a main indicator of epidermal "harrier-function", and laser-doppler flowmetry (LDF) and transcutaneous "gasometry" a group of flow related variables which have been shown to be extremely useful for clinical evaluation of many different vascular entities. However, many doubts still subsist regarding the true meaning of these variables. Also, the different variation factos which influence these measurements still need further clarification. Thus, considering that many of the variables which are frequently used to describe "skin physiology" may eventually be influenced by local perfusion conditions, the present study was designed to investigate the relative influence of the local flow conditions on TEWL and epidermal pH.

Data was collected from human healthy volunteers, both sexes involving 12 individuals (21 to 40 y.o.). All protocols were performed after informed and written consent. Cutaneous microcirculation (Laser Doppler Flowmetry, Oxford Optronix, UK), partial tensions of O2 and CO2 (TINA, TCM3, Denmark), TEWL and epidermal pH (Tewameter TM210 and SkinPHmeter PH900, respectively, from CK electronics, Germany) were registered in basal conditions and following a partial occlusive manoeuvre (tourniquette-cuff manoeuvre) performed on the upper limb, promoting a reactive hyperaemia. Descriptive statistics and non-parametric tests were executed and the significance level of $p<0.05$ adopted.

Results clearly suggest tbat tc PO2 correlate well with the flow profile following the reactive hyperaemia induction while for TEWL the discrete changes observed seems not to differ significantly from basal values. As for the epidermal pH, results seems to suggest that flow may exert only discrete influences on skin's surface pH, at least in a short-term perspective. This probably helps to confirm the major role of the local (epidermal) buffer mechanisms on the epidermal pH maintenance.

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Effects Of P.O. Used Sodium Hyaluronate (SH)

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We studied the influence of SH on experimentally caused adjuvant arthritis at rats, the influence of SH on the healing of injured joints and tendons at race horses and on the healing of the joint after knee operation at human.

The experimental adjuvant arthritis induced by suspension of thermally killed mycobacterium in incomplete Freud adjuvans at rats was treated by SH with different molecular weight, administrated per orally by sound in various dosages.

Conclusions:

- concentration of NO_2 -/NO_3- in serum was decreased after the treatment of arthritic rats by higher molecular weight SH, the low molecular weight one has opposite effect.
- swelling of hinders legs of arthritic animals culminated between 14th and 16th day after adjuvans application. After SH administration swelling of the joint decreased significantly on 14th ($p<0,05$), 21st and in 28th day (both $p<0,001$)

The race horses with various inflammatory and degenerative processes in joints and ligaments were treated by SH in sirup in a simple open multicentric study in 7 veterinary clinics. The diagnoses were: acute, subacute and chronic osteo-arthritis, arthrosis, sinovitis, tendinitis and tendovaginitis. The efficiency of the treatment was evaluated using the scale with four degrees for following parameters: swelling and painfulness of the joint, degree of hobbling, stiffness of the legs after the resting. The disposition of horse was evaluated before and just after 30-day treatment and also after further 30 days after treatment.

Conclusions:

- p.o. administration of SH leads to great improvement at 38% of horses, improvement at 52% and no effect at 10% of horses. No negative effect was observed at any horse.
- positive effect appeared just after treatment and remained minimally for other 30 days

The effect SH on knee joint after surgical operations was studied at university orthopaedic clinic with two groups of patients after knee operations. The first group was treated with SH for 30 days per orally, the second one was used as the control without the treatment. The efficiency of the treatment was expressed using the scale with four degrees for following parameters: swelling and painfulness of the joint and movement capability. The disposition of patient was evaluated before and just after 30-day treatment.

Conclusions:

- administration of SH leads to great improvement at 33% of patients, improvement at 58% and no effect at 9% of patients. No negative effect was observed.
- this positive effect speeds up healing after operation.

Quantitative Analysis Of The Hydration Content Of The In Vivo Skin By Compartmental Modelling Of Tewl Curves From P.O.S.T. With Different Occlusion Periods

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Trans-epidermal Water Loss (TEWL) is one of the most important variables used to characterize the hydric balance of the human skin1-6. However, considering the particular nature of this signal, the extractable information is difficult to explore. Several quantitative parameters have been proposed to characterize skin water dynamics in a more precise way. Compartmental modeling of the TEWL signal obtained after a POST (plastic occlusion stress test) have been proposed before 3 and validated 5,6. However, the comparison of different periods of occlusion prior to POST have not been done, although different masses of water involved should determine different expressions of the quantitative parameters used. 21 healthy volunteers (both sexes, mean age: 22 years) where submitted to a POST methodology following different occlusion periods (1H, 6H, 12H and 24H). The occlusion was maintained with proper material and performed in the volar aspect of the forearm. TEWL profiles (Tewameter TM210, CK, Germany) where obtained immediately after patch removal until fully stabilization. A bi-compartmental model, previously developed and validated 5,6 was adjusted to the data profiles and previously defined parameters calculated. The present study demonstrates the usefulness of the compartmental modeling to quantitatively detail TEWL curve after occlusion. This original approach allows to obtain important descriptors of the evaporation process such as the evaporation half-lives. Also, it is clear that 1H of occlusion provides the smallest value of half-live, suggesting a very fast evaporation process for the water accumulated in the Stratum Corneum. The longest value of half-live is obtained, as expected, for the 24H occlusion, thus reflecting a slower evaporation rhythm. A possible explanation may lie on the reduced corneocyte hydration achieved with reduced occlusion times. High duration occlusion times provide higher embedding capacity for the whole stratum corneum, thus involving higher water masses and delaying the evaporation process. In conclusion, this kind of approach seems to reinforce the interest on POST methodology since it solves the analytical limitations often referred as limiting factors, and provides a more precise and practical method to quantitatively analyze and describe in vivo water dynamics on human skin

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Following The Evolution Of Psoriatic Lesions During Photochemotherapy (Puva)

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The progression of the photochemotherapy (PUVA) efficacy on patients suffering from different expressions of Psoriasis Vulgaris can be assessed through several bioengineered techniques. These techniques may help to understand about the intrinsic mechanisms involved during therapy and, additionaly, to follow the skin's response to complementary treatments usually involved. This is the case for the emollients, a major class of therapeutical adjuvants specially useful for this particular kin condition. This way, the present study aims to contribute to identify the most relevant parameters which maybe quantitatively described through these techniques during the different phases of the treatment.

Patients (n = 6) were chose following a rigorous selection criteria, after informed consent,. Several expressions of the disease were considered, including patients with Psoriasis gutata or Psoriasis in plaques . In any case, all patients were recognised for PUVA criteria including more than 30% of body surface affected not responding to topical therapy. The clinical and functional evaluation included (a) Clinical assessment (PASI method) with photo recording; (b) biometrical assessment including the evaluation of the hydration content by evaporimetry and corneometry (with the Tewameter TM210/215 and the Corneometer CM825 from CK electronics GmbH, respectively), evaluation of the skin mechanical properties (Cutometer SEM474 from CK electronics GmbH), and structural evaluation by High Frequency Ultrasound (20MgHz Cortex Technology); (c) Epidermal Water dinamics assessment (POST). Measurements were performed on lesional areas and compared with the respective negative control (contralateral uninvolved skin), occurring in the inclusion (T0), after a calculated cumulative dose of PUVA (T1), in the at the end of PUVA (T2), and 30 days after PUVA treatment (T3).

Biometrical evaluation seems to corroborate the clinical findings already reported basically involving a reduction of the cutaneous hydration capacity as for other related properties such as biomechanics. However, evolution of lesions seems to depend primarily from its structural nature. The importance of further characterisation of this process is based on the need of a better understanding of this complex pathophysiology, ultimately contributing to the improvement of therapeutical success.

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NEW TRENDS IN THE SKIN-CARE MARKET

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Summary

It is well known that biochemical modifications in relation with age are able to modify skin permeability. Infant, children and elderly skins have different permeability and therefore knowledge of these possible variations may have important implications because the minor or major absorption through the skin may induce secondary side effects.
The quality of raw materials has to be a must and has to be carefully evaluated especially for the cosmetic products for infancy.
Moreover in the last 15 years the awareness of the so-called natural products is significantly growing in the cosmetic and particularly in the baby area.
Are the natural raw materials used in the cosmetic field well known and defined?
These questions need scientifically correct replies. In this way only it will be possible to talk about clinically correct cosmetics as natural cosmetics or cosmeceuticals.

Riassunto

E' ben noto come le variazioni biochimiche che si verificano con l'età siano in grado di modificare la permeabilità cutanea.
La cute infantile, quella dei bambini e degli anziani rivela infatti un grado di permeabilità differente. La conoscenza delle variazioni che si verificano a livello cutaneo con il trascorrere degli anni comportano importanti implicazioni, dato che la maggiore o minore assorbimento che si verifica attraverso la pelle può provocare effetti negativi secondari.
La qualità delle materie prime impiegate deve essere considerato di fondamentale importanza e deve perciò essere valutata con molta attenzione, soprattutto per quanto riguarda la produzione di cosmetici per l'infanzia.
Inoltre negli ultimi 15 anni l'utilizzazione di prodotti cosiddetti "naturali" è aumentato significativamente soprattutto nella realizzazione di cosmetici per bambini.
Le materie prime naturali che vengono utilizzate nel settore cosmetico sono veramente conosciute a fondo e clinicamente definite?
A queste domande sarà necessario dare risposte scientificamente valide.
Solo in questo caso si potrà parlare di cosmetici clinicamente corretti definiti anche cosme-ceutici.

"Body skin, whether aft or fore, receives little cosmetic attention in so-called civilized modern man beyond a dust of talcum powder.
Only that skin which is generally viewed, touched or sniffed is a major recipient of skin care. It is not, therefore, the physiological function of our skin which is our concern but its role in communication ."
This was officially declared during an International Meeting from the famous dermophysiologist John Ebling member of ISCD, twenty years ago (1,2). "For our own satisfaction it is necessary to believe that by caring for the skin we can preserve it, and keep it more normal than normal ". According with Prof. Kligman facial appearance, in fact, is one of the powerful factors influencing social interactions in many situations. Those who are attractive gain advantages and the unattractive suffer throughout the life cycle. What is beautiful is good (3)
Therefore, to perform its sexual and social functions, skin needs to look, feel and smell attractive.
For these reasons everyone is encouraged to use reasonable artifices to enhance her/his attractiveness. For the earliest records of human bathing and being care of the skin has always had important social religious and allegendly curative as well as hygienic significance.
And today?
Cosmetics are used by increasing numbers of people and very large quantities are consumed each year with the same and main purpose, to enhance attractiveness, to improve self-esteem to protect skin and hair from damaging UV light, pollutants and other environmental factors and in general to prevent aging (4-6).
Is there a real answer to all these customer expectation and hope?
In the last 15 years the scientific chemical and medical community has better understood the significance and the role of skin as barrier from the environment (7,8). Contemporary there have also been interesting research advances in the development of new raw materials derived from fine chemicals and/or botanicals (9)as well as in the utilization of new cosmetic delivery systems such as liposome and microcapsules (10,11). The progress in innovative raw materials and more active vehicles allows to realize modern cosmetics more efficacious and safe (12,13).
However it is necessary to increase research and studies for the development of more active cosmetics with even better pharmaceutical properties, capable to really prevent , for example, skin xerosis (14), formation of wrinkles or promotion of hair growth (15-17). Contemporary it seems also necessary to study more deeply the crucial difference between adults and infant skin, for developing cosmetic products with no more possible side effects. The need for caution in the use of topical agents in infants is stressed, particularly of chemical and botanical compounds which may have potentially harmful systemic effects because of the relatively greater percutaneous absorption than in adults.
It is also necessary to remember that the crucial difference between adults and infants is primarily the ratio of surface area to weight. Finally it seems also important to remember that infant skin is similar but not equal to childhood (3 to 9 years). Big attention has, therefore, to be reserved to the formulation and production of cosmetic products for babies. As matter of fact baby-care market actually is encountering growth spurts, ranging, for example, in USA about 200 million dollars of sales with a medium increase of 15% (18).
What seems important to underline is that, in this niche of the global cosmetic market, faced with the challenge of differentiating themselves, the corporate players are using the Internet to provide cyber-savvy moms with information and products not typically found on grocery shelves. They launch the product line gearing to ward a lifestyle theme (product for mom and baby) or the benefits of natural and botanicals, or the designing special packaging: each product could be easily used with one hand. Therefore a

lot of money is used for packaging and advertising and the new baby products are described also as eco-friendly and naturally derived. The trends to wards natural as marketing tool has already hit the adult skin care market, and is gaining momentum in the baby care market as well. Mothers, who have actually helped to create this trend with their buying decisions now want to have products with benefits which are based on natural ingredients for their babies too. At this purpose the more frequently used slogan on Internet is: only the best and natural for baby.
What to say at scientific level?

THE NATURAL

The awareness of natural products, growing in every area, is significantly growing in the cosmetic and particularly in the baby area. Are the natural raw material used in the cosmetic field, well known and defined?
Are they used in the right quantity to be efficacious and result harmless?
Is the quality really controlled at the best?
Detailed knowledge about the effects of the material during cosmetic application and well defined quality level are, in fact, essential particularly when it comes to the formulation of baby care products. As known natural raw materials are complex mixtures and its active compounds are subject to seasonal and local changes. Moreover a general concern about plant material quality is impurities like pesticides or other agricultural chemicals making their way into the product (19).

QUALITY AND PURITY

The purity and the settled quality are therefore the basic requirement of a natural material.
During the last twenty years it was possible to improve knowledge of plant materials by more refined analytical techniques and more sensitive analytical tools.
It was so possible to select the right raw material, optimize the extraction process and select the marker and the active ingredients content of the plant.
For example, in the water extract of chamomile (matricaria recutita L.), flavonoids apigenin and apigenin-7-glucoside were found , as active compounds. All both have a strong anti-oxidant and anti-irritation property (20).
In this way science has becoming solved the problem of quality and activity of natural raw material. However the problem of quantity used for a cosmetic preparation of a natural extract seems still unsolved.
This example may help to clarify this sentence "A normal baby lotion may contain, for example, 0,1/0,5% of a standardized chamomile extract as anti-inflammatory compound".
Is this quantity sufficient to give the cosmetic lotion a real anti-inflammatory activity?
Furthermore, can a product be defined natural just because containing that small part of vegetal extract?
These questions need scientifically correct replies. In this way only it will be possible to talk about clinically correct cosmetics as natural cosmetics or cosmeceuticals.
However is necessary to remember that better medicine, better nutritional regimes, better bodily care and regular controlled exercise have improved and surely will continue to improve the quality of life, increasing our longevity and modifying our way leaving.
Finally to conclude with the words of our lamented friend Prof. William Montagna " The longevity revolution has brought a steady increase in the number of old people in the world and this situation should be a challenge to society: to tunnel the experience and expertise of the elderly, to capitalize on their accumulated-knowledge and occasional wisdom and to put them at the service of all work for prosperity, peace and happiness" as claimed by oriental philosophies: prosperity, fertility and ... longevity!

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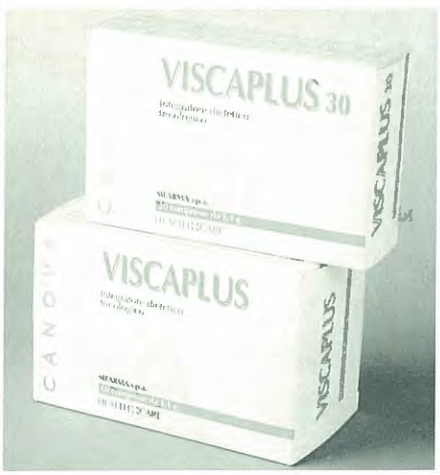

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