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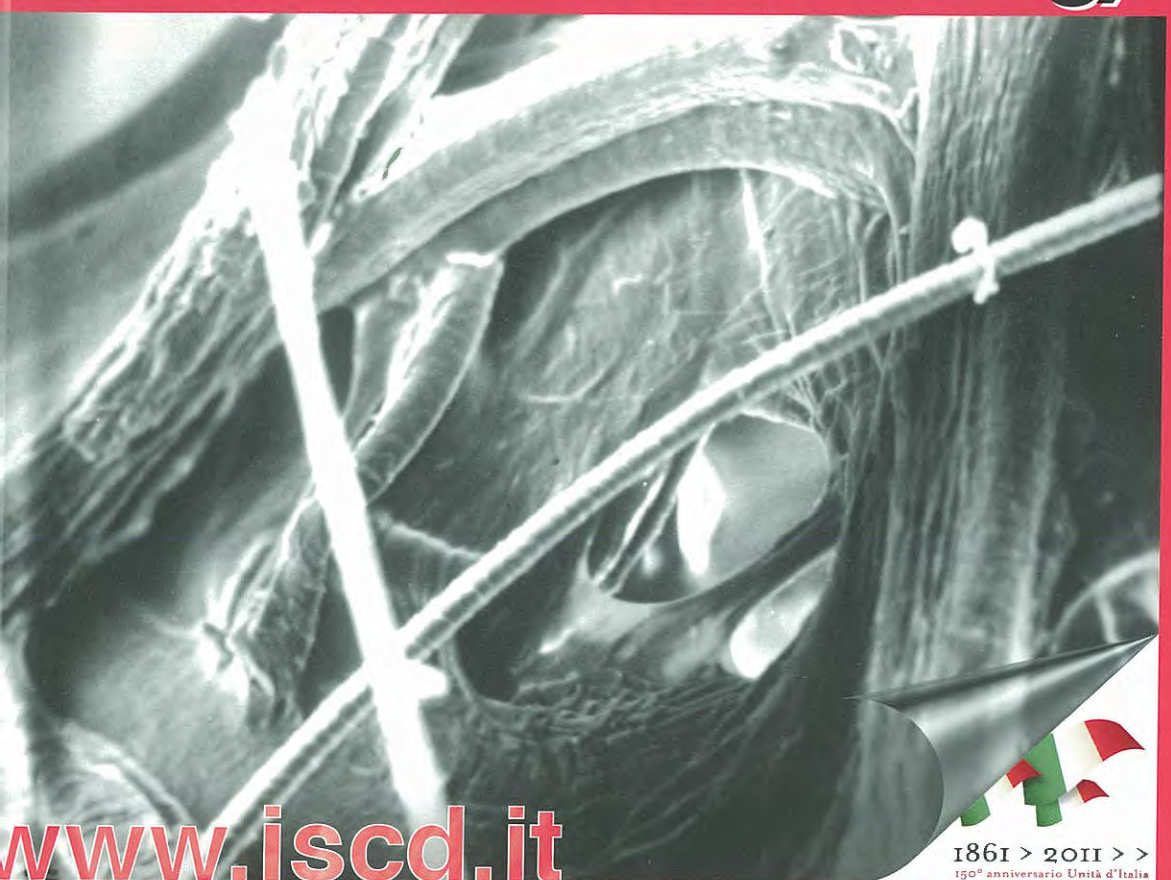

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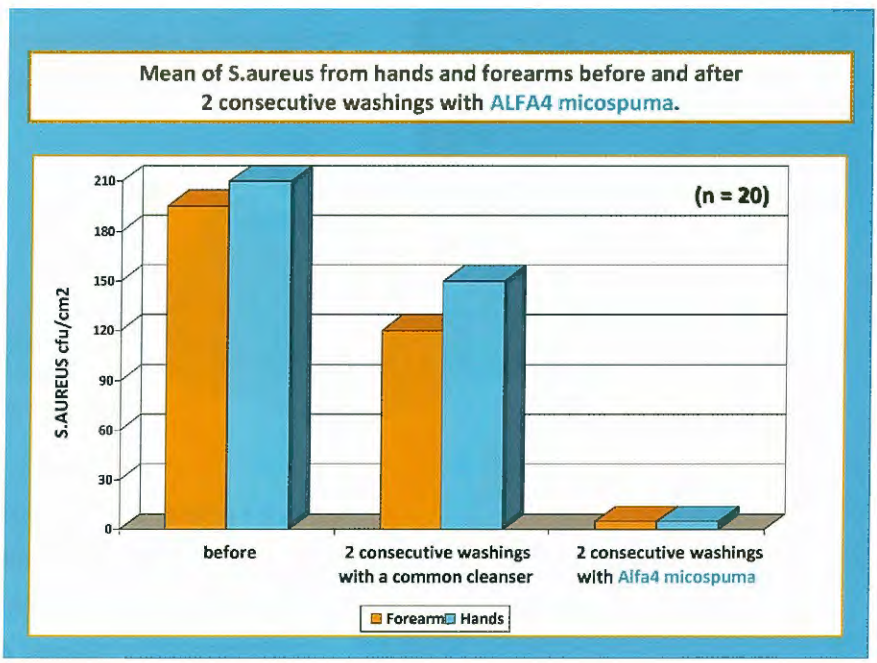

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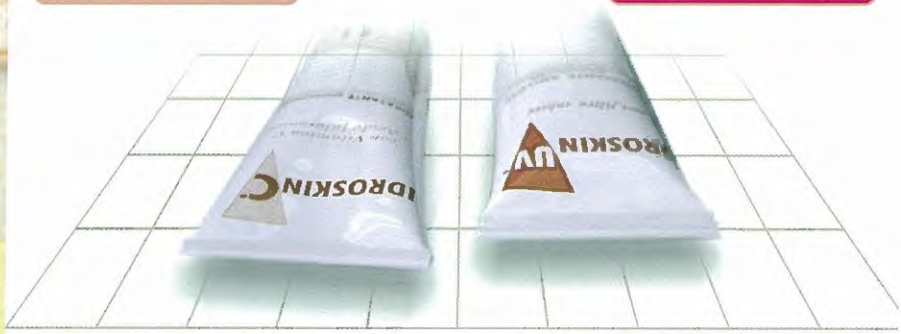

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Contents

J. Appl. Cosmetol. **29**, 109-110 (April/June 2011)

The Cosmetic Efficacy: Myth or Reality?

The skin's structure and its overall appearance changes are influenced by the ageing process and by the environment. Natural ageing of the skin is a genetically programmed process which is, in fact, further enhanced by environmental factors, snch as ultraviolet irradiation (UV) inducing the so called photoageing. UV rays increase the production of free radicals and the inflammation process, resulting in macroscopic changes, such as the formation of fine lines, skin wrinkling, rough skin texture, and irregular pigmentation, as well as in degradation of extracellular matrix (ECM) molecules, and accumulation of DNA damages.

Cosmetic products are designed to address a wide range of skin-care needs including, for example, sun care, acne facial and body moisturizing, and of course skin aging. All these cosmetics have to provide solid foundation to achieve and maintain healthy and beautiful skin in order to obtain a global Beauty and Wellness at 360° by a global mind-body activity.

The frontier among Wellbeing, Beauty and Health is everyday diminishing. All sectors are exchanging concepts to give rise both to Health-Food and Beauty-Foods areas, and to *nutricosmetics* and *cosmeceuticals*.

What's good for the health is good for the skin too, and viceversa. Thus, as previously reported in the issues of this journal, the NICE approach was born where Nervous, Immune, Cutaneous and Endocrine systems are working all together to give a global beauty and wellness, thereby unifying the topical and emotional activities. While the *defensive-biological* protection against environmental influences is the normal scientific argument of a cosmetic product, the sensory perception is the emotional side connecting the skin with the whole body. This is the new frontier of innovative cosmeceuticals.

Skin care products are now expected to make feel good and not only look good. Thus, cosmetic chemists in collaboration with biologists, dermatologists, and gynaecologists need to know in a deeper way not only the chemistry and hystology of the skin and mucous membranes, but also to study the physiological basis of emotions, and analyze the role of the skin and cell messages in the elaboration of these emotions, by the use of *in vitro* and *in vivo* new technologies, involving all the skin-body activities.

For all these reasons, according with Luciana Gramiccioni and Roberta Marcoaldi from the Italian Institute of Health, *"it is more and more important conduct reliable studies about the principal intended action of the various active ingredients and vehicles used, about their ability to penetrate the skin and mucous membranes and about their biological and/or therapeutic function"*.

Moreover, according to the lawyer Sonia Selletti *"it is apparent that the protective function and the keeping in a good state, reported in the EU cosmetic regulation, can not imply therapeutic functions, but this does not prevent the cosmetic from having protective adjuvant function together with the use of medication for skin care, and such property from having action mechanism not interfering with other product classes."*

Some scientific opinions reported in this special issue will try to clarify the real efficacy of today cosmetic products trying to define the borderline between the myth of the desired and supposed acti-

vity and the reality of the demonstrated efficacy.
At this purpose it was reported also a study demonstrating the importance to select in the right way the vehicle and the active ingredients used, for example, to formulate a shampoo enriched with the efficacy of an active therapeutic ingredient.

P. Morganti
Editor-in-Chief

J. Appl. Cosmetol. **29**, 111-118 (July/September 2011)

Cosmetic Products and Cutaneous Absorption.
The cosmetic efficacy: myth or reality?

Fabrizio Guarneri, Biagio Guarneri
Institute of Dermatology - University of Messina, Italy

Received: *September, 2009. Presented at The IX ISCD International Multidisciplinary Congress "Wellness and Beauty Outside In: East & West working together", Rome, 21-23 October 2009.*

Key words: *Cutaneous barrier; Cutaneous absorption; Cosmetics; Regulations;*

Summary

The concept of "skin barrier" has radically evolved with the progress of scientific knowledge, from that of an inert physical structure merely separating internal organs of the body from the "external world" to that of a "smart system" able to selectively regulate a bidirectional flux of substances, dynamically interact with the environment and feed to the rest of the organism informations crucial for homeostasis.

The structural and functional complexity of the skin barrier and the multiple interactions among its components are key elements in determining cutaneous absorption of substances: thus, the result of the contact between any product and the skin depends not only on the chemical and physical characteristics of the product itself or the macro- and microenvironmental conditions of the contact, but also on the characteristics of the cutaneous barrier, its integrity and its functionality, in a dynamic and variable equilibrium.

Interaction with skin barrier functions is too often underevaluated or not considered in the laws that regulate the commercialization of topical products for human care. In particular, European Union laws that define medicines, medical devices and cosmetics appear rather confusing and not based on scientific evidence, but essentially on the declarations of producers about the intended use of products. This often leads to uncertainty about the composition of cosmetics and to extreme dishomogeneity of efficacy and safety data, particularly for which concerns interactions with the cutaneous barrier (healthy, altered or frankly damaged). Since no substance is "neutral" for the skin, new laws are desirable, which require manufacturers to fully declare the components of their products and perform rigorous and standardized tests to define all effects of such products on the cutaneous barrier.

Riassunto

Il concetto di "barriera cutanea" si è radicalmente evoluto, col progresso della conoscenza scientifica, da quello di una struttura fisica inerte, mera separazione fra gli organi interni del corpo e il mondo esterno, a quello di un "sistema intelligente" in grado di regolare selettivamente un flusso bidirezionale di sostanze, interagire dinamicamente con l'ambiente e fornire al resto dell'organismo informazioni cruciali per l'omeostasi.

La complessità strutturale e funzionale della barriera cutanea e le molteplici interazioni fra i suoi componenti sono elementi chiave nel determinare l'assorbimento cutaneo delle sostanze: il risultato del contatto fra un qualsiasi prodotto e la cute dipende, quindi, non solo dalle caratteristiche fisicochimiche del prodotto stesso o dalle condizioni macro- e microambientali in cui il contatto avviene, ma anche dalle caratteristiche della barriera cutanea, dalla sua integrità e dalla sua funzionalità, in un equilibrio dinamico e variabile.

L'interazione con le funzioni della barriera cutanea è troppo spesso sottovalutata o non considerata nelle leggi che regolano la commercializzazione di prodotti topici per uso umano. In particolare, le leggi dell'Unione Europea contenenti le definizioni di farmaci, dispositivi medici e cosmetici appaiono piuttosto confuse e non basate su dati scientifici, ma essenzialmente sulle dichiarazioni dei produttori riguardo alla destinazione d'uso dei prodotti. Ciò determina spesso incertezza sulla composizione dei cosmetici ed estrema disomogeneità dei dati di efficacia e sicurezza, particolarmente per quello che riguarda le interazioni con la barriera cutanea (pienamente funzionale, alterata o francamente danneggiata). Dal momento che nessuna sostanza è "neutrale" nei confronti della cute, sono auspicabili nuove leggi che impongano ai fabbricanti di dichiarare integralmente i componenti dei loro prodotti e di effettuare test rigorosi e standardizzati per definire tutti gli effetti di tali prodotti sulla barriera cutanea.

INTRODUCTION

The skin barrier: from anatomical unit to functional unit

The increasing knowledge about cutaneous physiology and patho-physiology has progressively led from the concept of skin as a physical "wall", aimed to avoid the penetration of environmental substances into the body, to that of skin as a living, complex and active interface organ, able to dynamically interact with the environment and communicate with other organs and playing a fundamental role in the homeostasis of the entire organism: in the words of Menon (1) a "smart system".

Today, it is well known that skin provides passive and active defense against nocive environmental agents (physical, chemical, biological), regulates absorption and elimination of exogenous and endogenous molecules, processes environmental "signals" of different nature and feeds the resulting "data" to the immune, endocrine and nervous systems, to which it is strictly connected.

As a consequence of the new knowledge, also the meaning of the term "skin barrier" has radically changed: in the modern view, the skin barrier is no more considered a merely anatomical entity, i.e. the sum of cells and intercellular molecules, but a functional entity, resulting from all the complex interactions between cutaneous elements (cells and their products), endogenous (immune, nervous, endocrine) factors and environmental agents (2, 3).

To achieve its functions, skin is, similarly to other biological interfaces, bidirectionally and selectively permeable to different substances. Selection is obtained through a combination of physical, chemical, and exogenous and endogenous biologic factors; moreover, the various intra- and extracellular enzymes allow biochemical modification of some compounds at multiple steps of their path through the skin.

The most superficial part of the skin barrier is the stratum corneum, that, with its highly keratinized cells and intercellular lipids, confers a good mechanical resistance and makes impossible the penetration of molecules with a high molecular weight and difficult the absorption of hydrophilic compounds of any molecular size; moreover, through desquamation (regulated by intercellular lipids and specific enzymes), substances lying on the skin are physically removed.

The skin is covered by a hydrolipidic film, which is created and maintained by the synergic action of cutaneous glands (sebaceous glands, sweat glands) and saprophytic cutaneous microbes. The equilibrium among microbial species, and the overall microbial proliferation, are tightly regulated not only by multiple interactions between the different microbial species, but also by various substances secreted by the skin (antimicrobial peptides, sebum, water, etc.). The hydrolipidic film is a medium that unfavours pathogenic microbes and chemically modifies exogenous substances, often inactivating them.

Within the deeper layers of the skin, a wide variety of cells take part to the barrier activity. Several of them can "capture" and process, in many ways, exogenous substances that pass through the stratum corneum: in some cases, the exogenous molecules are simply destroyed or inactivated, while in the case of APCs (Antigen Presenting Cells), mainly Langerhans cells, they undergo a more complex fragmentation process and their fragments are presented to the immune system in the context of MHC molecules, to activate a proper response by effector immune cells.

Blood vessels and nerve fibers are also to be considered parts of the "functional skin barrier": both are, in different ways, channels by which the skin is bidirectionally connected with the rest of the body and, consequently, they play a crucial role in maintaining cutaneous and general homeostasis (2-9).

Cutaneous absorption: physiology and pathophysiology

Cutaneous absorption can occur through an intercellular path, an intracellular path, or through hair follicles. Although active captation is possible, the transport of substances happens mainly by passive diffusion: in this model, absorption depends on the gradient of concentration of a substance between the outer and the inner layers of the skin.

However, for the aforementioned reasons, the cutaneous barrier does not act as a simple membrane, and absorption is also significantly influenced by several factors, such as the physical and chemical features of the molecule(s) applied on the skin, the structure and condition of the skin itself, and environmental variables.

For which concerns penetration in the skin, one of the most important characteristics of a molecule is its partition coefficient (also known as distribution coefficient), not only between a hydrophilic and a hydrophobic phase, but also between the stratum corneum and the vehicle used in the compound applied on the skin.

The size of the molecule is similarly important: smaller molecules can penetrate more easily than bigger ones. Less important features are the presence of polar chemical groups on the surface of the molecule, electric charge, hydration, and volatility. Of course, for all the above parameters, modifications possibly occurring on the cutaneous surface must be kept into proper consideration.

Percutaneous absorption also depends on several subjective parameters, some with interindividual variability, such as age, sex, ethnicity and hereditary features, others with both interindividual and intraindividual variability (significant differences among various body areas), such as skin thickness, skin aging, cutaneous hydration and pH, number of hair follicles, cutaneous blood flow.

Finally, microenvironmental conditions at the site of application, such as temperature, humidity and occlusion, can influence the interaction between a compound and the skin barrier, and consequently the local permeability of the barrier itself.

Because of the bidirectional connections of the skin with other organs and systems, the cutaneous barrier function is subject to little or –sometimes– relevant modifications as a consequence of physiological (e.g. menstrual cycle) or paraphysiological (e.g. pregnancy) events and/or in response to variable–although "normal" – individual behaviours (e.g. sun exposure, work, hobbies, etc.).

Major alterations of the barrier can occur during cutaneous diseases and also in some cases of systemic diseases, and play often a significant role in maintaining or aggravating the disease itself. Indeed, malfunction of the "cutaneous filter" allows penetration of exogenous substances (including, in some cases, biologic macromolecules), which are usually irritant and/or toxic and/or able to stimulate/amplificate an immune-mediated or non-immune-mediated inflammatory reaction; at the same time, skin barrier damage also causes a loss of substances (mainly water), through the skin. All the above events further deteriorate the barrier function, generating a "vicious circle" (2-9).

This is of particular importance when studying the possible effects of topical products on skin, because these compounds are frequently used, more or less properly, to heal cutaneous lesions and/or to mask the aesthetic damage due to imperfect cutaneous conditions.

Cosmetics, drugs and other topical products: the blurry boundaries of law

Commercialization of products for human care, including topical ones, is subject to specific

rules, that are different for each type of product. In the European Union (EU), law distinguishes among medicinal products, cosmetic products, and medical devices. However, legislative definitions of the three categories appear, in the light of current scientific knowledge, rather questionable.

According to the EU regulations, a cosmetic product is *"any substance or preparation intended to be placed in contact with the various external parts of the human body (epidermis, hair system, nails, lips and external genital organs) or with the teeth and the mucous membranes of the oral cavity with a view exclusively or mainly to cleaning them, perfuming them, changing their appearance and/or correcting body odours and/or protecting them or keeping them in good condition"* (10, 11), while a medicinal product is *"any substance or combination of substances presented for treating or preventing disease in human beings or animals, and which may be applied with a view to making a medical diagnosis or to restoring, correcting or modifying physiological functions"* (12, 13) and a medical device is *"any instrument, apparatus, appliance, material or other article, whether used alone or in combination, including the software necessary for its proper application, intended by the manufacturer to be used for human beings for the purpose of a) diagnosis, prevention, monitoring, treatment or alleviation of disease, b) diagnosis, monitoring, treatment, alleviation of or compensation for an injury or handicap, c) investigation, replacement or modification of the anatomy or of a physiological process, or d) control of conception, and which does not achieve its principal intended action in or on the human body by pharmacological, immunological or metabolic means, but which may be assisted in its function"* (14-16).

These definitions appear rather inadequate to classify the wide variety of topical products available and their interactions with the skin. In a recent paper (17), Morganti and Paglialunga extensively examined and pointed out the numerous "overlaps" between the three categories defined by EU laws, and showed that many topical products, even made by a single component, could be included in more than one category.

Indeed, as the same authors also remarked, in the EU laws there is no reference to possible interactions between topical products aud components of the skin barrier –although available data show that such interactions exist– and remains then unclear how a non-medicinal product achieves its desired effects.

In our opinion, the lack of reference to the effects of topical products on the functions of the compouents of the skin barrier is a major problem of the laws, and no real progress can be made in the regulatory field without solving this problem.

Current laws are based on the declaration of the producer about the intended functions of a given product: as mentioned above, "with a view to...", "presented for...", "intended by the manufacturer to..." are the sentences used.

This is a non-scientific approach, that, particularly for which concerns cosmetics, relies on the words of the producer and his "good will" to perform adequate tests on non-medicinal products (with some exceptions, there is no obligation concerning the type of tests performed, the number of subjects involved, and so on).

Even in the case of a perfect self-regulation of all manufacturers, able to guarantee that a product can achieve its intended functions, the current approach of the law is still inadequate, because it does not consider the possibility of multiple effects of a substance, thus configuring a "virtual world" where each substance or compound is able to highly specifically reach its intended target and interact only with it, not affecting other structures or functions.

This is obviously not what really happens: due to the "dynamic" structure of the skin barrier,

absorption of substances and multiple interactions with cells and other components and functions must be considered for each topical product (particularly when it is applied on damaged skin).

A good example is that of ordinary make-up, a topical product with a purely cosmetic function: although ideally designed to remain at skin surface and not interact with any cell or metabolic path, make-up is actually in part absorbed by skin and interacts with it, as demonstrated by the onset, in some subjects, of irritant contact dermatitis and/or allergic reactions.

Moreover, in the last decades, the continue evolution of cosmetic research progressively introduced an increasing number of components with pharmacological or "nearly-pharmacological" activity, as well as highly technological delivery systems (not different from those used for medicinal products), into cosmetic products. This makes the boundaries between the current legally recognized categories even more blurry, and further underlines the distance between laws and scientific reality.

In conclusion, it is our opinion that current regulations should be revised in the light of current knowledge, accepting the idea that there is no substance which is "neutral" to the cutaneous barrier. As a logical consequence, all products made to be applied on human skin, independently from their intended purpose, should have a complete list of their components and undergo rigorous and standardized tests to define all of their effects on the functions of the cutaneous barrier (healthy, altered or frankly damaged).

The composition of the products and the results of the tests should be made available to physicians, similarly to what happens currently for which concerns medicinal products, to allow a well informed final decision about the product(s) to be used in each specific case. Indeed, beyond the schematic classification commonly used for diseases and healthcare products, practice shows that, because of the multiple variables involved, "there are not diseases, but patients" as an old clinical motto says. It is the physician's responsibility, then, to choose the right product on the basis not only of the specific patient, but also of the specific situation of each patient in a given moment; in our view, laws and industries should have the fundamental role of supporting the physician in this often difficult choice by providing quality products and clear and complete information about them.

References

1) **Menon GK. (2002)** New insights into skin structure: scratching the surface, *Adv. Drug Deliv. Rev.*, **54 (1):** 13-17.
2) **Gnarneri B, Vaccaro M, Guarueri F. (2004)** The skin barrier: its architecture and function, 7th ISCD International Congress. Roma 4-6 November 2004.
3) **Guarneri F, Vaccaro M, Guarneri C. (2006)** Funzione barriera e sue alterazioni. In: *Lotti TM. Il ringiovanimento del volto*. Nuovi concetti, nuove terapie in dermatocosmetologia. UTET.
4) **Madison KC. (2003)** Barrier function of the skin: "la raison d'être" of the epidermis, *J. Invest. Dermatol.*, **121**: 231-241.
5) **Harding CR. (2004)** The stratum corneum: structure and function in health and disease, *Dermatol. Ther.*, **17 (1):** 6-15.
6) **Rippke F, Sehreiner V, Doering T, Maibach HI. (2004)** Stratum corneum pH in atopic dermatitis: impact on skin barrier function and colonization with Staphylococcus Aureus, *Am. J. Clin. Dermatol.*, **5:** 217-223.
7) **Coderch L, Lopez O, de la Maza A, Parra JL. (2003)** Ceramides and skin function, *Am. J. Clin. Dermatol.*, **4:** 107-129.
8) **Selsted ME, Ouellette AJ. (2005)** Mammalian defensins in the antimicrobial immune response, *Nat. Immunol.*, **6:** 551-557.
9) **Berard F, Marty JP, Nicolas JF. (2003)** Allergen penetration through the skin, *Eur. J. Dermatol.*, **13:** 324-330.
10) **Anonymous Council Directive 76/768/EEC of 27 July 1976.** On the approximation of the laws of the Member States relating to cosmetic products. O.J.E.C. n. L262/169. 27.9.1976 (and following amendments).
11) **Anonymons Council Directive 93/35/EEC of 14 June 1993.** Amending for the sixth time Directive 76/68/EEC on the approximation of the laws of the Member States relating to cosmetic products. O.J.E.C. n. L151/32, 23.6.1993.
12) **Anonymous Council Directive 65/65 EEC of 26 January 1965.** On the approximation of previsions laid down by law, regulation or administrative action relating to proprietary medicinal products. O.J.E.C. 369/65, 9.2.65.
13) **Anonymous Directive 2001/83/EEC** of the European Parliament and of the Council on the Community code relating to medicinal products for human use. O.J.E.C. L311/67, 28/11/2001.
14) **Anonymous Council Directive 90/385/EEC of June 1990.** On the approximation of the laws of the Member States relating to active implantable medical devices. O.J.E.C. L189, 20/07/1990 P. 0017.0036.
15) **Anonymous Council Directive 93/42/EEC of 14 June 1993** concerning medical devices. O.J.E.C. L169, 12/07/1993 P. 0001.0043.
16) **Anonymous Legislative Decree 24 February 1997,** n° 46. Implementation of Directive 93/42 regarding medical devices.
17) **Morganti P, Paglialunga S. (2008)** EU borderline cosmetic products review of current regulatory status, *Clin. Dermatol.*, **26:** 392-397.

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Guidelines for the Cosmetics' Efficacy Evaluation.

The cosmetic efficacy: myth or reality?

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Key words: *Efficacy; Guidelines; Claim; Borderline products;*

Summary

Efficacy evaluation of a cosmetic is one of the most important passage in the research, development and marketing of a product and has to be included in the product information file.
Special attention, however, needs to be applied when sound scientific substantiation of claims might bring the cosmetic in the delicate borderline area. Guidelines to help manufacturers and regulators have been produced by the EU Commission but reference to case law need also to be taken into account.

Riassunto

La valutazione dell'efficacia di un prodotto cosmetico rappresenta il più importante compito della ricerca e sviluppo e del marketing dedicato al prodotto stesso e riportato nel suo file informativo.
E' necessario dedicare una particolare attenzione nel redigere messaggi divulgativi e pubblicitari di prodotti cosmetici presenti nella delicata area di confine tra cosmetici, farmaci e dispositivi medici.
A tal proposito la Commissione Europea ha redatto le linee guida per aiutare i produttori ma è necessario anche tenere in evidenza i diversi casi giuridici presenti nella letteratura legale europea su questo argomento.

INTRODUCTION

Looking and feeling good brings confidence and success in of our lives. Cosmetics help people taking care of themselves and play a role for a better quality of life by providing feelings of well-being (by using a shampoo, a makeup or a fragrance), protecting from climate impacts and consequent skin/hair damage (by applying sunscreens or skin moisturizers or hair conditioners) and ensuring good hygiene practices (by means of soaps and oral care products).

Colipa (The European Cosmetics Industry Association) guidelines and recommendations (e.g. on safety assessment, product information file, undesirable effects, cosmetic efficacy) represent an important tool for the industry, providing useful information on the practical interpretation and application of legal requirements (1).

Recently Colipa has published revised guidelines for the efficacy evaluation of cosmetic products (2). Methodologically sound research is essential for the efficacy evaluation and the guidelines offer an overview of the established different testing methodologies. providing data on the performance of cosmetics products.

Cosmetic claim substantiation is an integral part of product development and design and validated evaluation methodologies grant an appropriate and effective tool to assess the validity of product efficacy.

Moreover efficacy claims and the methods substantiating them need to be included in the product information file, by the person placing the product on the market, according to the current Cosmetics Directive (3) and the future Cosmetics Regulation (4).

However some product efficacy claims, even when scientifically substantiated, might fall outside the scope of the Cosmetics Directive. Concerning the delicate question of borderline products among the scope of the Cosmetics Directive and other pieces of EU Regulation, like the Medicinal Product, the Medical Devices, the Biocides, the Food and the General Product Safety Directives there are several guidelines produced by the EU Commission to help both the national Competent Authorities and the industry (5).

The Manual on the scope of the application of the cosmetics Directive (6) is the latest guideline and it is the result of the effort of a working group chaired by the Commission (DG Enterprise) and composed of representatives of all Member States of EU and EFTA, the European Organisation of Consumers (BEUC), the European Federation of Cosmetic Products (COLIPA) and other industry associations.

In the EU a product can have only one regulatory status at a time, as reiterated also in the Recital no. 5 of the Cosmetic Directive 76/768/EEC ' [the Cosmetic Directive] is not applicable to the products that fall under the definition of cosmetic products but are exclusively intended to protect from disease'.

Recognizing the existence of a borderline area with definitions overlapping to some extent did not, in any case, induced the regulators to introduce mid way categories (e.g. cosmetic/drugs) even in the recent recast of the Cosmetics Directive which ended with the approval of the new Cosmetics Regulation.

The EU Court of Justice in various judgements indicated that, in case of definitions overlapping, should be applied the most rigorous legal regimen.

Nevertheless the different Commission guidelines, published on its Internet site, contain principles laid down by case law:

- global assessment of the characteristics of the product (e.g. function, composition, method of use, frequency of application, application site, distribution, familiarity of the consumer with the product, potential risks, labelling, packaging, claims, target population etc.) must be taken into account in order to avoid

that a single characteristic is enough to arrive at a definite judgement;

- the intended main function of the product (i.e. cleaning, perfuming, changing appearance, correcting body odours, protecting, keeping in good condition) takes precedence when making a decision and a secondary, ancillary function for 'preventive' purposes does not necessarily classify a product as a drug or a biocide;
- the question whether a product or its substance(s) restores, corrects or modifies physiological functions by exerting a pharmacological, immunological or metabolic action has to be taken on a case-by-case basis. Cosmetics may modify physiological functions without affecting the metabolism in a significant way, i.e. not any minor modification of physiological function suffices to render a product a medicinal product by virtue of function;
- if a substance is also contained in a drug as active ingredient, it is not decisive for the classification of a product but this may be an indicator for a pharmacological, immunological or metabolic action of the substance independently of the question whether the product is ingested or used topically.

The EU Court of Justice (7) is of the opinion that: "As regards the meaning of 'restoring, correcting or modifying physiological functions', it is clear from the aim of health protection pursued by the Community legislature that the phrase must be given a sufficiently broad interpretation to cover all substances capable of having an effect on the actual functioning of the body. However, this criterion does not serve to include substances such as certain cosmetics which, while having an effect on the human body, do not significantly affect the metabolism and thus do not strictly modify the way in which it functions."

References

1) http://www.colipa.eu/publications/guidelines.html
2) Guidelines for the evaluation of the efficacy of cosmetics products. Revised may 2008 http://www.colipa.eu/publications/guidelines.html?view=item&id=23
3) European Union Cosmetics Directive 76/687EEC and its amendments - OJ L 262, 27.9.1976, p. 169, as amended; Non-official consolidated version at: http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:1976L0768:20080424:en:PDF
4) Draft EU Cosmetic Regulation. http://register.consilium.europa.eu/pdf/en/09/st03/st03623.en09.pdf
5) http://ec.europa.eu/enterprise/sectors/cosmetics/cosmetic-products/borderline-products/index en.htm
6) http://ec.europa.eu/enterprise/sectors/cosmetics/files/doc/manual borderlines version40 en.pdf
7) http://ec.europa.eu/enterprise/sectors/cosmetics/documents/case-law/index en.htm

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Unfair Practices and Consumer Rights.
The cosmetic efficacy: myth or reality?

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Summary

Tales about marvelous mysterious countries, that sometimes are only the result of imagination while sometimes do refer to existing places, all share the characteristic of being full of emphasized descriptions and extraordinary details. You can have a feeling similar to the one raised by such tales when exposed to advertising, whose task itself is to depict a given product or service in such a way as to lure consumers into buying it.
For cosmetics in particular this situation is magnified by the nature of the products, which is closely related to the improvement of the appearance of a person, both in the eyes of others and in the eyes of that very person.
The distinction between myth and reality is the main subject matter of the repression of misleading advertising. The relevant regulation in Europe has changed recently following the adoption of the Directive 2005/29/EC on Unfair Commercial Practices, which set new rules enhancing consumer rights. Among other things, the new legislation outlines "sharp practices" which are prohibited throughout the EU, such as misleading and aggressive practices. Enforcement of these rules is the task of national consumer protection authorities and courts.

Riassunto

I racconti di paesi misteriosi e meravigliosi, che a volte sono solo frutto di immaginazione e a volte si riferiscono a luoghi esistenti, condividono tutti la caratteristica di essere pervasi di descrizioni piene di enfasi e di dettagli straordinari. Si può avere una sensazione simile a quella provocata da

* *Ogni opinione espressa è a titolo personale e non impegna l'Istituzione di appartenenza.*
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questo tipo di racconti quando si viene esposti alla pubblicità, il cui compito è di per sé quello di rappresentare un determinato prodotto o servizio in modo tale da indurre i consumatori a comprarlo.
Per i cosmetici, in particolare, questa situazione è amplificata dalla natura dei prodotti, che è strettamente correlata al miglioramento della apparenza di una persona, sia agli occhi degli altri che agli occhi di quella stessa persona.
Ebbene, la distinzione tra mito e realtà è l'oggetto principale della repressione della pubblicità ingannevole. La relativa regolamentazione in Europa è cambiata di recente in seguito all'adozione della direttiva 2005/29/CE sulle pratiche commerciali scorrette, che ha fissato nuove regole che rafforzano i diritti dei consumatori. Tra le altre cose, la nuova normativa definisce pratiche particolarmente gravi, che sono vietate in tutta l'UE, come le pratiche ingannevoli e le pratiche aggressive. L'applicazione di queste norme è compito delle autorità nazionali di tutela dei consumatori e dei tribunali nazionali.

INTRODUCTION

It is worthwhile considering how the recent change in consumer protection legislation produces an evolution in the assessment of marketing practices in general and in the cosmetics sector in particular. A few cases have already been decided by the Italian Competition Authority that supervises misleading and aggressive marketing in Italy, with rulings in which it is possible to see the continuity that exists with the consolidated jurisprudence in the field and elements introduced by the new regulation.

The Autorità Garante della Concorrenza *(the Italian Competition Authority)*, is in charge of the application and enforcement in Italy of the rules against so called "unfair commercial practices". It is the same institution that enforces in Italy all aspects of competition law, assessing potentially anticompetitive agreements, abuses of dominant position and mergers above a given size threshold.

Our work concerning "unfair commercial practices" is well described by the title of this session, as it actually concerns the distinction between myth and reality.

The main subject matter of the repression of misleading commercial practices is investigating if there exists a difference, between what effects consumers may be induced to attach to a given product by its advertising and marketing, and what effects the use of that product can really have.

For cosmetics in particular this distinction is made more complex by the very nature of those products, which is closely related to the improvement of the appearance of a person, both in the eyes of others and in the eyes of that very person.

UNFAIR PRACTICES...

Since 2004, when I had the pleasure to attend another similar meeting also organized by the International Society of Cosmetic Dermatology, the regulation then in force concerning misleading and comparative advertising (legislative decree 74 of 25 January 1992) has been replaced in 2005 by the so called 'Codice del Consumo' (Code of Consume) *(set by legislative decree n. 206 of 6 September 2005)*. More recently the regulation has been amended again in 2007 *(by Legislative decrees 145 and 146 of 2 August 2007)*, extending the competence and powers of the Italian Competition Authority.

Comparative advertising is now regulated and encouraged so as to promote competition *(as per Legislative Decree 145/2007)*, and the Italian Competition Authority is now competent to monitor and punish a set of so called "unfair commercial practices" (i.e. misleading commercial practices; aggressive commercial practices; unsolicited supply in distance contracts; unsolicited services in the commercialization of financial services) *(as per legislative decree 146/2007)*.

These reforms were a consequence of an evolution in the relevant regulation in Europe, that took place with the adoption of the Directive 2005/29/EC on Unfair Commercial Practices, which set new rules enhancing consumer rights. It is this Directive that, among other things, outlined the "sharp practices" which are prohibited throughout the European Union, such as misleading marketing.

As a result of the rules now in force, the Italian Competition Authority is entitled to autonomously trigger investigations (i.e. without a third party complaint), it has full investigative powers, it can require any evidence necessary to its investigations, and can carry out inspections with the support of the Guardia di Finanza *(the Fiscal Police)*.

Another consequence of the most recent reform is also the increase of the fines that the Italian Competition Authority can inflict when asses-

sing the infringement of the rules against "unfair commercial practices", so that now fines range from 5.000 up to 500.000 Euro. If an enquiry concerns a number of possible infractions, a fine will be inflicted for each one of the ascertained violations. On the other hand, it is now possible for the Italian Competition Authority to close a proceeding without ascertaining the violation, by accepting commitments by the firm to eliminate all unfair aspects of a commercial practice. What does this mean for firms, and in particular for firms of the cosmetic sector?

...AND COSMETIC PRODUCTS

After the recent changes in consumer protection legislation only a few cases concerning the cosmetics sector have been decided by the Italian Competition Authority.

In its rulings, though, it is possible to see the continuity with the consolidated jurisprudence that built up when the former regulation was in force, concerning only misleading advertising.

In general, claims must be true and verifiable, and they must accurately communicate product features, characteristics and performance. A rough list of some of the main principles stated in recent rulings so as in the past ones is the following:

- advertising may contain only claims regarding characteristics and effects for which there is a clear demonstration, and of these characteristics and effects must be given an intelligible description;
- a clear indication must also be given of the tests performed and of their exact nature;
- self-evaluation tests can not be used to ground statements about the effects of a product;
- in vitro studies alone are not sufficient to ground statements about the effects of a product;
- "in vivo" studies must be based on the comparison with placebo or similar products;
- quantitative information must not only refer to maximum values of efficacy;
- stated characteristics and effects must be consistent with the nature of the product, be it a cosmetic or a supplement.

What has indeed changed with the introduction of the new regulation is the scope of proceedings. While under previous legislation the Italian Competition Authority could only look into possible misleading effects of single advertisements, the present object of investigation, "commercial practices", enables it to carry out the evaluation of complex marketing strategies. So one investigation may for example concern together the printed or broadcast advertisement, the internet site and the package. On the other hand one investigation may concern the marketing of different products which are somehow connected in the firm's advertising strategy.

As a result of this wider scope of the investigations that the Italian Competition Authority can now carry out, the effectiveness of its rulings might be enhanced.

Meanwhile also international cooperation in the field of consumer protection has intensified, and in the European Union in particular it takes now place on a regular basis, through meetings among all Member States, a common data base fed by all Member States with the cases that may be of cross border meaning, and a series of common activities, the so called "sweep" actions, in which every year all Member States cooperate in an investigation on a given market.

It must anyway be remarked that, in the past, quite a few advertisements of cosmetic products have been reviewed by the Italian Competition Authority, and in many cases not only the firms that were affected by those rulings revised their marketing strategy, but also the majority of the other firms did the same, in order to abide to the principles stated in those rulings.

This makes a good starting point also for the

application of the new regulation now in force, the focus of which is no longer on single advertisements, but on the whole of the marketing strategy of a given product or line of products.

References

1) **Legislative Decree no. 206 of 6 September 2005** - Consumer Code (http://www.agcm.it/en/list-consumer-protection/1725-legislative-decree-no-206-of-6-september-2005-consumer-code.html)
2) **Directive 2005/29/EC of the European Parliament and of the Council of 11 May 2005** concerning unfair business-to-consumer commercial practices in the internal market and amending Council Directive 84/450/EEC, Directives 97/7/EC, 98/27/EC and 2002/65/EC of the European Parliament and of the Council and Regulation (EC) No 2006/2004 of the European Parliament and of the Council ('Unfair Commercial Practices Directive')
3) **Legislative Decree uo. 146 of 2 August 2007** implementing directive 2005/29/EC (http://www.agcm.it/en/list-consumer-protection/1724-legislative-decree-no-146-of-2-august-2007.html)
4) **Autorità Garante della Concorrenza e del Mercato - Annual Report 2005** http://www.agcm.it/en/annual-report/1804-annual-report-2005.html
5) **Autorità Garante della Concorrenza e del Mercato - Annual Report 2007** (http://www.agcm.it/en/annual-report/1806-annual-report-2007.html)

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Overlapping Definitions of Drugs, Topical Medical Devices, Cosmetics.

The cosmetic efficacy: myth or reality?

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Summary

The purpose of this paper is to outline the main issues arising out from the possible overlapping in the definitions provided for by the law for medicinal products, topical medical devices and cosmetics.
The Legislators carefully consider the need to clearly determine the demarcation between these different categories of products and recognizes that the determination of clear borderline among products is aimed at enhancing for the proper implementation of the European Directives and the correct interpretation and enforcement of transposing national laws. Nevertheless quite often happens that overlapping spaces objectively occur so to originate borderline cases where the parties involved (mainly companies and competent authorities) have to find fair solutions.
With the support of the European Court of Justice interpretation and of the Guidance Documents concerning borderline products issued by the European Commission (and agreed between the Commission services and the competent authorities of Member States) it is possible to identify a correct approach to the matter which caveat are figured in the following paper.

Riassunto

Questo lavoro si propone di delineare alcuni profili di interesse che emergono dalla possibile sovrapposizione ed interferenza nelle definizioni poste dalla legge con riguardo ai medicinali, dispositivi medici per uso topico e cosmetici.
Il legislatore considera attentamente l'esigenza di determinare con chiarezza la demarcazione tra queste differenti classi di prodotti e riconosce che la definizione di ambiti chiari tra prodotti è volta a

favorire un'appropriata trasposizione delle Direttive Europee ed una corretta interpretazione ed attuazione nelle norme nazionali. Ciò non di meno sovente si constatano ambiti di possibile interferenza capaci di determinare casi di frontiera (cd. borderline) che costringono le parti coinvolte (principalmente le imprese e le autorità competenti) a trovare una soluzione.
Con il supporto della interpretazione della Corte di Giustizia delle Comunità Europee e con i Manuali interpretativi e le Linee Guida emanate dalla Commissione Europea (concordati tra i servizi della Commissione e le Autorità competenti degli Stati membri) è possibile identificare un corretto approccio al problema i cui caveat sono prospettati in questo lavoro.

The rules governing the marketing of health and wellbeing products contain precise definitions meant by the Legislator to mark the identification of the various classes of products and correctly determine their implementation field.
It has in any case been proved that scientific and technical progress often confers the health products such original and innovative features as to make it more difficult their classing as to legal definition due to the overlapping that can occur among the different areas.
The cosmetic sector is an emblematic example of such a situation. Research and progress have favored the notion of functional cosmetics which can interact with physiological functions, without interfering, on the action level, with mechanisms typical of other classes of products (for instance, medications). The basic issue is therefore identifying which is actually the frame for functional cosmetics within our current legal classification.
In order to do so, we must first say that the definition of cosmetic (a cosmetic product means any substance or preparation intended for placing in contact with the various external parts of the human body (epidermis, hair system, nails, lips and external genital organs) or with the teeth and the mucous membranes of the oral cavity with a view exclusively or principally to cleaning them, perfuming them or protecting them in order to keep them in good condition, change their appearance or correct body odours) comprises functional profiles that when effectively interpreting the development and the progress in the cosmetic field, broadens the interpretation limits. It becomes therefore necessary to proceed on a "case by case" basis as indicated also the Judges of the European Court of Justice, when asked to decide upon the interpretation of rules in borderline situations (1) in such a case supported by the "Manuals" drawn by the Work Groups and by the Guidelines on Borderline products issued by the European Commission (2), that, although not binding at a legal level, are certainly effective interpretation tools to correctly orient the enterprise and interpreters' performance.
Without claiming to give an exhaustive view on this issue, may we give some hints about the assessment frame.
Therefore, taking into account typical cosmetic functions, if no interpretation issue can be raised about the commonest functions such, for instance "perfuming", on the contrary, reference to "protection" and "keeping in good condition" the parts of the body which the cosmetic can be applied on, reminds of activities which, with much greater difficulty, can be classified and determined a *priori* to establish abstract classification schemes.
A cosmetic protective function can in fact occur in various areas, so as the keeping in good state, and the space for the correct classification of the products is precisely close to these limits.
It is apparent that the protective fnnction and the keeping in good state can not imply therapeutic functions, but this does not prevent the cosmetic from having protective adjuvant function together with the use of medication for skin care and such property from having action mechanisms not interfering with other product classes.
This principle is clearly stated: as regards the meaning of "restoring, correcting or modifying physiological functions" (3) it is clear from the aim of health protection pursued by the Community legislator that the phrase must be given a sufficiently broad interpretation to cover all substances capable of having an effect on the actual functioning of the body.
However, that criterion does not serve to include substances such as certain cosmetics which, while having an effect on the human body, do not significantly affect the metabolism and thus do not strictly modify the way in which it functions (4).
We might argue whether the above principle is

still relevant to the present in the light of article 1(2) of Directive 2001/83 according to which "medicinal product" means "(a) any substance or combination of substances presented as having properties for treating or preventing disease in human beings; or (b) any substance or combination of substances which may be used in or administered to human beings either with a view to restoring, correcting or modifying physiological functions by exerting a pharmacological, immunological or metabolic action, or to making a medical diagnosis" and also in the light of article 2(2) of the mentioned Directive according to which "in case of doubt, where, taking into account all its characteristics, a product may fall within the definition of a "medicinal product" and within the definition of a product covered by other Community legislation the provisions of medicinal directive shall apply" (id est: non cumulation principle).

The possible solution derives from a recent ECJ interpretation assessing that: Directive 2001/83 does not apply to a product in respect of which it has not been established that it is a medicinal product within the meaning of art. 1(2) (b) of that directive, that is to say, a product in respect of which it has not been scientifically established that it is capable of restoring, correcting or modifying physiological functions by exerting a pharmacological, immunological or metabolic action, or that it may be used to make a medical diagnosis.

It follows that products containing a substance having a physiological effect cannot automatically be classified as medicinal products by function unless the competent administration has made an assessment, with due diligence, of each product individually, taking account, in particular, of that product's specific pharmacological, immunological or metabolic properties, to the extent to which they can be established in the present state of scientific knowledge.

It should be borne in mind that the capacity to restore, correct of modify physiological functions should not lead to the classification as medicinal products by function of products which, while having an effect on the human body, do not significantly affect the metabolism and thus do not strictly modify the way in which it functions (5).

Still, the cosmetic definition, with regard to the product aim, involves the issue of the "exclusive or prevailing" use, thus granting access to the representation of primary and ancillary functions. In such cases the legal limit is of course the former prevailing on the latter, in order to respect the cosmetic functionality domination with regard to secondary areas.

Some indications ruling the possible overlapping issue between cosmetics and medical devices arise out for the mentioned European Commission Guidance Documents according to which Medical devices are defined as articles which are intended to be used for a medical purpose.

The medical purpose is assigned to a product by the manufacturer who determines through the label, the instruction for use and the promotional material related to a given device its specific medical purpose. Medical purpose relates to finished products (supplied to the final user).

The definition of medical device should be understood to include products intended to be used principally for a medicinal use. Therefore products intended to have a toiletry or cosmetic purpose are not medical devices even though they may be used for prevention of a disease.

This precious indications make it efficient the work of interpreters' and companies engaged in the proper classification of their products.

In any case we may conclude that the frame for the assessment of cosmetic effectiveness "between myth and reality" is still wide, but also thanks to this fact, there remains a wide margin for progress, science and the interpreters' work.

References

1) ECJ, HLH Warenvertriebs GmbH, para 51; also ECJ, C-290/90 of May 1992 "Eye lotions, ECR 1992 I-3317, para 17.
2) http://ec.europa.eu/enterprise/sectors/cosmetics/cosmetic-products/borderline-products/index_en.htm
3) Directive 65/65, art. 1-2.
4) ECJ, Upjohn, C-112/89, 16 April 1991.
5) ECJ, Hecht –Pharma, C-140/07, 15 January 2009.

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Factors determining the antidandruff effect of Climbazole in a shampoo formulation

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Summary

Dandruff is a persistent and annoying common condition affecting the scalp. It is also a challenging disease/disorder for management. This study reports the effect of shampoo ingredients on the antidandruff effect of climbazole in a shampoo formulation. The results indicate that the interaction between various ingredients greatly contribute to the antidandruff activity of climbazole. The antidandruff activity of climbazole was superior in SLES when compared to other surfactants used in the study.

Riassunto

La forfora è una disfunzione comune e fastidiosa che colpisce il cuoio capelluto. Il come affrontare questa disfunzione/patologia rappresenta anche una sfida.

Questo studio riporta gli effetti di alcuni ingredienti di uso cosmetico sull'attività antiforfora esercitata dal climbazolo inserito negli shampoo.

L'attività di questo antifungino si è dimostrata più elevata con l'uso del Sodio Lauril Etere Solfato (SLES) rispetto ad altri tensioattivi.

INTRODUCTION

Dandruff is one of the most commercially exploited skin diseases by the personal care industry all over the world (1). The lipophilic yeast of genns *Malassezia* is implicated in causing dandruff and the most common species being *M. globosa M. restricta and M. furfur* (2). There are several factors in dandruff formation snch as excess sebum production, dryness of scalp due to continuous use of shampoos/ hair conditioners, excessive combing etc. (1,3).

The etiology and various predisposing factors of the disease are still unknown, dandruff remains a challenge despite availability of therapeutic options.

Shampoo is one of the best hair cleansers and its use dates back to 1972 (4). Antidandruff shampoo is a very complex chemical system that contains primary, secondary, amphoteric & anionic surfactants besides conditioners, detangling agents, hair softeners and antidandruff agents. Performance of an antidandruff agent in such a complex system is always an area of concern. The pH sensitivity, solubility, availability and substantive deposition of the antidandruff agents on the scalp during shampoo wash are the key factors determining the activity of the antidandruff agents. Hence, the formulation of an antidandruff shampoo must fit into the above matrix of understanding to enable it to be effective against the causative organisms.

Varieties of antidandruff agents are used widely in various antidandruff preparations such as climbazole, zinc pyrithione, octopirox, ketoconazole, selenium sulphide, coal tar etc. Among these, climbazole is one of the most popular antidandruff agents. It is an imidazole antifungal with well-proven safety data (5). The European Commission's Scientific Committee on Consumer Products is of the opinion that the use of climbazole in rinse-off hair cosmetics including its use as antidandruff active ingredient up to a maximum concentration of 2% does not pose any risk to the health of consumer and hence it is an ideal candidate for antidandruff shampoos. Further, climbazole can be used in both transparent and opaque preparations without much formulation and stability challenges. The present study reports the various factors affecting the anti-fungal activity of climbazole in an antidandruff shampoo against different species of *Malassezia*.

MATERIALS AND METHODS

Antifungal testing

Antifungal testing of climbazole was done using standard procedure (6). Five strains each of *M.globosa, M.restricta and M.furfur* recovered from human scalp were used in the study. The strains were maintained in Dixon agar with periodic subculture.

Climbazole was solublized in 5% DMSO and a stock solution of 10mg/ml was prepared. Broth dilution test was performed for antifungal assay (7). Fungal cells adjusted to the absorbance of 0.6 at 450nm were used as inoculum.

Sabouraud's dextrose agar with Tween 60 was used as test medium. The test plates were incubated at 26°C for 7 days.

The minimum inhibitory concentration (MIC) was determined as per standard procedure (7).

Ten percent (10%) solutions of various surfactants such as sodium lauryl ether sulfate (SLES), cocomonoethanolamide (CMEA), cocamidopropyl betaine (CAPB), cocodiethanol amide (CDEA) were prepared. Climbazole at a concentration of 2mg/ml was added to these preparations as stock and were used for testing the activity against test organisms at various concentrations. 2mg/ml solution of climbazole in 10% DMSO was used as control. Above preparations without climbazole was also used separately for testing the effect of these agents on the test orga-

nisms. A similar procedure to study the effect of climbazole in silicon oil and isopropyl palmitate was also done.

A formulation of shampoo prepared with 1% climbazole was tested for its activity against different species of *Malassezia*. A shampoo (brand not disclosed to avoid any commercial implication) with 1% climbazole was procured from the market and tested for its activity. The pH of the test shampoo formulation was adjusted to the pH of the market sample to achieve uniformity of results.

Methylene blue reductase test

This test was done to establish the contact time of the formulation vs. % kill of *Candida albicans* cells. The yeast cells (10^4 *cfu*) were incubated with 10% solution of various formulations for 2, 5 and 10 minutes. After incubation, the tubes were centrifuged, washed with saline, stained with methylene blue and examined under microscope (8). Ten fields at random were chosen and the number of stained vs. unstained cells were counted on relative abundant basis and the % kill effect of the formulation vs. the contact time was established.

RESULTS

Among the three different species of *Malassezia* tested, *M. globosa* was observed to be relatively more susceptible to climbazole when compared to other two species viz., *M. furfur* and *M. restricta* (Table 1). The MIC of climbazole was noted to be in the range of 62.5 – 125 μg/ml.

The efficacy of climbazole was tested in different ingredients that are commonly used for formulating an antidandruff shampoo.

The shampoo ingredients were prepared as 10% solution. Using the above solutions of each of the ingredients, a stock of 2mg/ml of climbazole was prepared.

The activity of climbazole in different shampoo ingredients was tested.

The activity of climbazole was superior in SLES when compared to other surfactants tested. Similarly the activity of climbazole was least in CMEA. The susceptibility pattern of different species of Malassezia was also different (Table 2). Activity of climbazole was lower in CDEA when compared to CAPB. Interestingly, the activity of climbazole in dimethicone and isopropyl palmitate was relatively stable.

None of the shampoo ingredients (10% solution) on 'as is basis' showed any activity against all the species of *Malassezia* tested.

The MIC of climbazole in 5% DMSO was in the range of 31.25μg/ml for *M. furfur* and *M. restricta* and one level higher (31.25μg/ml) for *M. globosa*. The activity of climbazole in 5% DMSO was taken as reference to study the interfering role of various shampoo ingredients in the activity of climbazole (Table II).

TABLE I

MIC of climbazole on Malassezia species on 'as is basis'

Species	No. of strains	Concentration in µg/ml					
		1000	500	250	125	62.5	31.25
M.furfur	5	-	-	-	-	+	+
M.globosa	5	-	-	-	-	-	+
M.restricta	5	-	-	-	-	+	+

'-' = Absence of growth of the organism, '+' = Presence of growth

TABLE II

MIC of climbazole in different shampoo ingredients (the ingredients were prepared as 10% solution in water, except dimethicone)

Test materials	Susceptibility of different species / μg/ml		
	M.furfur	*M.restricta*	*M.globosa*
SLES	NA	NA	NA
SLES+climbazole	125	125	125
CMEA	NA	NA	NA
CMEA+climbazole	1000	1000	1000
CDEA	NA	NA	NA
CDEA+climbazole	500	500	500
CAPB	NA	NA	NA
CAPB+climbazole	250	250	250
Dimethicone	NA	NA	NA
Dimethicone+climbazole	31.25	62.5	62.5
Isopropyl palmitate	NA	NA	NA
Isopropyl palmitate + climbazole	62.5	62.5	62.5
5% DMSO + climbazole	31.25	31.25	62.5

Based on the interfering role of various shampoo ingredients on the activity of climbazole, an antidandruff shampoo formulation was done with climbazole at 1% level. Similarly, a market antidandruff shampoo with climbazole at 1% level was procured.

The market sample and the formulated shampoo were tested for the activity against different species of *Malassezia*.

The formulated antidandruff shampoo exhibited activity at 125μg/ml against different species of *Malassezia*. Activity of the market shampoo was at 1000μg/ml.

When the pH of the market shampoo was adjusted to acidic, the shampoo exhibited relatively superior activity (Table III).

Minimum contact time required to cause total death of the yeast cells was studied by methylene blue reductase test using *C. albicans*. Near to total death of all yeast cells was observed when the test formulation of shampoo was treated with yeast cells for 5 minutes. Only 50% death of yeast cells was observed even after 10 minutes of treatment of yeast cells with the market shampoo (Table IV).

TABLE III

MIC of controlled shampoo formulation and a market shampoo with climbazole at 1% level

Test samples	MIC of 1% climbazole / μg/ml		
	M. restricta	*M. globosa*	*M. furfur*
Controlled formulation	125	125	125
Market sample	1000	1000	1000
pH adjusted market sample	500	500	500

TABLE IV
Contact time vs. % death of yeast cells

Test products	Contact time/ % death (% stained vs. nnstained yeast cells)		
	2min	5min	10min
Controlled formulation	70	100	100
Market sample	20	40	50

DISCUSSION

The present study revealed several interesting aspects on the role of different shampoo ingredients in the antidandruff activity of climbazole. When the role of different shampoo ingredients on the antidandruff effect of climbazole was tested individually, we observed that CMEA and CDEA significantly brought down the activity of climbazole. Interestingly, SLES and CAPB did not reduce the anti-dandruff activity of climbazole significantly when compared to control. Based on the above findings, we hypothesize that an effective antidandruff shampoo should contain less level of CMEA and CDEA when climbazole is used as antidandruff agent. Accordingly, an anti-dandruff shampoo was formulated with CMEA and CDEA at 2% level and climbazole at 1%. The shampoo formulation developed was tested along with a market sample with climbazole at 1% level. Interestingly, we observed the formulation made by us exhibited superior activity when compared to the market sample.

The second postulate we framed was to establish the role of pH in the activity of climbazole. For this purpose, we adjusted the pH of our shampoo from 5-7.4. Although the acidic pH was found to enhance the activity of climbazole (9), the role pH was not as significant as various ingredients used for formulating a shampoo. It is usual that the level of surfactants used for antidandruff shampoo are relatively higher than the normal shampoo. Higher level of use of surfactants in antidandruff shampoo is expected to play a role in effective clearing of scalp cells. However, our study has proved that shampoo with lower level of surfactants is most effective when climbazole is used as antidandruff agent. The data of the present study however cannot be extrapolated for other antidandruff ingredients and hence warrants a detailed study.

To simulate a likely *in vivo* activity, we studied the contact time of the shampoo vs. % death of *C. albicans*. Near complete death of yeast cells was found within 5minutes of contact time with our formulated shampoo as against 50% death even after 10 minutes contact time with the market shampoo.

The above findings suggest that despite the same level of climbazole in both shampoos, the interplay of various shampoo ingredients greatly contribute to the antidandruff activity of climbazole. Findings of the present study clearly reveal that formulation of any 'functional' personal care product needs a proper understanding of all the constituent ingredients and their interactions with each other. It is widely believed in personal care industry that higher the number of ingredients; better is the effect. But our study establishes that simpler the formulation containing synergistic ingredients better is the delivery of functional benefit.

References

1) **Ranganathan S, Mukhopadhyay T. (2010)** Dandruff: The most commercially exploited skin disease. *Indian J. Dermatol.*, **55(2):** 130-134.
2) **Gupta AK, Batra R, Bluhm R, Boekhout T, Dawson TL Jr. (2004)** Skin diseases associated with Malassezia species. *J. Am. Acad.y Dermatol.*, **52:** 785-798.
3) **Rao BI, Dawson TL. (2005)** The role of sebaceous gland activity on scalp microflora metabolism in the etiology of Seborrheic dermatitis and dandruff. *J. Investigative Dermatol. Symposium Proceedings*, **10:** 194-197.
4) **Douglas Harper (65456) (2007)** "Online Etymology Dictionary". http://www.etymonline.com/ Retrieved 2007-07-14.
5) **Alex APR, Hu T, Aardema MJ, Nash JF. (2009)** Evaluation of the genotoxicity of the imidazole antifungal climbazole: comparison to published results for other azole compounds. *Mutation Research/genetic Toxicology and Environmental Mutagenesis*, **672(1):** 27-39.
6) **Meletiadis J, Mouton JW, Meis JFGM, Bouman BA, Donnelly PJ, Verweij PE, EUROFUNG Network (2001)** Comparison of spectrophotometric and visual readings of NCCLS method and evaluation of a colorimetric method based on reduction of a soluble tetrazolium salt, 2,3-Bis {2-Methoxy-4-Nitro-5-[(Sulfenylamino) Carbonyl]-2H- Tetrazolium-Hydroxide}, for Antifungal Susceptibility Testing of Aspergillus Species. *J. Clin. Microbiol.*, **39:** 4256-4263.
7) **Tunney MM, Ramage G, Field TR, Moriarty TF, Storey DG. (2004)** Rapid colorimetric assay for antimicrobial susceptibility testing of Pseudomonas aeruginosa. *Antimicrob. Agents Chemother.*, **48:** 1879-1881
8) **Smart KA, Chamber KM, Lambert I, Jenkins C, Smart CA (1999)** Use of methylene violet staining procedures to determine yeast viability and vitality. *Am. Soc. Brew. Chem.*, **57:** 18-23 (Pub. No. J-1999-0204-03R).
9) **Low pH shampoo containing climbazole (1989)** US Patent No.4,867,971, Sept 19.

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Formulating Natural Cosmetics

by Anthony C. Dweck

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The market for natural cosmetics has increased rapidly in the last 15 years. But both legislation -such as health claims/regulation-and the real meaning of natural cosmetics is evolving only slowly, opening up, however, a wellspring of innovation opportunities for consumers.

Consumer acceptance looking for healthy and natural cosmetics, plays, in fact, a pivotal role and needs to be assessed carefully before new products are launched. The basis of consumer acceptance is influenced by endogenous factors such as the consumer characteristics, the purchasing situation and the external recommendations of the product on its functional health benefits. These factors are influenced by the health status of the consumer and his/her individual knowledge about ingredients and product characteristics.

Therefore, to position any new natural cosmetic, scientific support of the functional ingredients used is certainly required, as well as consumer assessment may help to verify the target group and potential communication strategies.

At this purpose *Formulating Natural Cosmetics* organized in 16 Chapters and IV Appendices, is a precious book necessary to select natural ingredients for formulating innovative cosmetics and inspiring new product concepts and markets.

What it is interesting to underline is the simplicity with which the different active ingredients are classified as fixed oils, butters, fat and waxes, essential oils and natural actives, completed of all the specific chemical-physical activities and their traditional uses.

Special chapters are dedicated to minerals, botanical extracts, isoflavones phytohormones and phytosterols, as well as to natural anti-irritants, colours and gellant agents.

Finally special sections are dedicated to the toxicological information and to the legal challenges the companies should have to distribute natural ingredients and products. Last but not least a comprehensive and detailed appendix (appendix I) is dedicated to the toxicity of essential oils, where all the today scientific data are reported together with SAF and Product Type Consumer Exposure levels, indicating the different IFRA QRA category. Comments on the maximum level of use for dermal sensitization are also reported for all the11 categories described.

Appendix II is a review of natural colours, their code, CI number, Common name, Name, Colour, Source, Solubility, Supplier and Trade names are reported by an easy readable table.

On Appendix III the materials employed as scrub and abrasive are reported, as well as Appendix IV is dedicated to the glossary describing the more used cosmetic terminologies.

In this period where unattractive wrinkling tend to be viewed in terms associated with old age, i.e

deteriorated appearance, worn out and ugly, and what is beautiful is considered good and attractive, it is not surprising that people should seek to modify their facial appearance to appear younger and healthy.

Thus the nse of protective and anti-ageing cosmetics increases year by year and formulators are working under stringent constraints to strike a balance between the skin compatibility, economics and functionality of the natural active ingredients selected. This is also because consumers are asking for effective cosmetic products naturally oriented; so with the ongoing increase in the variety of cosmetic products proposed over the last years, it has become more and more difficult for them to decide the most appropriate products for their needs.

Hence, the success of a *natural* cosmetic today is not only a question of performance and efficacy but also a question of how it is promoted to the potential buyer. Therefore claims on natural products are extremely varied and often depend on the product formulation, the concentration of natural ingredients used, the market and the current trends.

Whenever the nature of the product effect justifies its activity, the claim must be shown. But any kind of support should be acceptable at the condition it can be scientifically and reasonably justified. For all these reasons *Formulating Natural Cosmetics may* be considered the most clear, simply to use, and up-to-date reference guide to formulate innovative and effective cosmetics based on the use of natural ingredients. Many are the natural active ingredients reported and supported by technical data and references, so that a clever cosmetic chemist may easily select the ingredients to use for the formulation designed.

Nevertheless the book may be a supporting source for people involved in marketing and for all students or practitioners interested to better understand the significance of a natural cosmetic.

P. Morganti
Editor-in-Chief

Ichthyoses. Clinical, Biochemical, Pathogenic and Diagnostic Assessment

by PM Elias, ML Williams, D Crumrine, M Schmuth

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Dry skin is an important feature of the atopic state. It is commonly assumed that patients with atopic dermatitis (AD) have inherited dry skin. Thus the dryness may, however, reflect mild eczematous changes, concomitant ichthyoses, or a complex of both of these changes. Anyway, ichthyoses is a disorder of keratinisation characterized by the development of dry rectangular scales.

The ichthyoses-form dermatoses consist, however, of a heterogeneous group of hereditary disorders all of which are characterized by the accumulation of large amounts of scales on the cutaneous surface. Kinetic studies of the epidermis of this pathology have shown, for example, increased germinative cell hyperplasia and increased transit rate through the epidermis in *lamellar ichthyoses* and *epidermolytic hyperkeratosis*, while normal values were obtained in *X-linked ichthyoses* and *ichthyoses vulgaris*.

Integrating the histopatological and ultra structural data with molecular genetics may help clinicians in the diagnosis of different types of ichthyoses.

This book, organized in 4 chapters and 3 appendices (**chapter 5**), differently from other books, looks from the functional abnormalities which drive the ichthyoses phenotype towards the responsible gene and not vice versa. Naturally, this new approach is most productive when the responsible gene is already known, also if the pathogenesis of the skin phenotype can mislead the investigator. On the contrary therapeutic interventions need to sustain and support the barrier restoration. Therefore while gene "replacement therapy still remains a distant dream", a better "knowledge of cellular pathogenic mechanisms could provide immediate opportunities for novel therapies" according with the opinion of the book's editors.

Thus book is focused on the application of skin ultra structure to obtain a more sure diagnosis of different ichthyoses, utilizing a battery of techniques.

The battery has been used to view both the compact, cohesive, organized structure of normal Stratum Corneum (SC) and to localize and appreciate the lipids of the intercellular membrane domains and the corneocyte proteins. The limited progress, to date, in delineating the pathogenesis of many of the disorders of cornification (DOC) focused on this book should be attributed, in fact, to a failure in utilizing the rights methods necessary for evaluating the dynamic architecture of the affected SC.

It includes not only changes in the organization of the lipid-enriched extracellular lamellae, but also changes in corneodesmosome structures within the SC interstices. For this reason in the Appendix 1,

protocols for proper tissue handling, primary fixation, postfixation (O_S O_4 and R_u O_u), dehydration, cytochemical and tracer methods are reported with the intent to spur future efforts, necessary to explore the pathogenesis of this complex group of disorders, and to have also new light for understanding in a better way the normal skin functions. All these procedures are described and discussed to facilitate the work of the involved histologist, so that clinician may give the exact diagnosis.

At this purpose many unpublished diagnostic observations are reported for the first time to shed further light on the pathogenesis of several DOCs. Many of these ultra structural techniques are, in fact, not in common clinical use by pathologists, and are not widely available to clinicians. Moreover, a clinically based classification has been retained, in which the DOCs are referenced with their curative gene(s) also. As previously reported, in the DOC, a variety of unrelated mutations provoke a barrier defect that cannot be restored, as happened in normal human epidermis. Hence, the ichthyoses are invariably associated with epidermal hyperplasia, hyperkeratosis, inflammation, and sustained barrier dysfunction to be repaired by topically applied emulsions, capable to rearrange or repair the organization of the lipid lamellae together with the corneocytes structure, rebalancing the secretion of the lipid hydrolases, proteases/antiproteases and the cytokine pro-inflammatory cascade, when occur.

Normal desquamation represents, in fact, an orderly process in which loss of corneocyte cohesion requires progressive proteolysis of corneodesmosomes mediated by a cocktail of proteases, whose net activities vary according to depth-dependent changes in the pH of the SC, and to endogenous proteases inhibitors, whose activation can directly stimulate the inflammatory process. Moreover, SC lipids, such as free fatty acids, and antimicrobial peptides are normally delivered by lamellar body secretion to the SC intercellular domains, and provide a first line of defence against microbial invasion. Therefore, failure of lamellar body secretion or lipid processing or proteolytic inactivation of antimicrobial peptides may account for the bacterial fungal or viral infections, as happen in some forms of ichthyoses, where the permeability barrier is broken.

At this purpose, it is to remember that the SC comprises a unique, 2-compartment system of protein-enriched corneocytes, embedded in a lipid-enriched extracellular matrix organized as lamellae, and analogized to a brick wall. This corneocyte brick contributes to the permeability barrier, through at least 2 mechanisms.

First, corneocytes serve as a critical *scaffold*, necessary to organize the extracellular lipid matrix into the characteristic lamellae. Second the vertical organization of the corneocytes through the generation of multiple overlapping layers of cells results in the extracellular matrix forming a difficult and tortuous pathway that further impedes the regress of water trough the skin. Moreover, this complex structure possesses other critical functions, such as a unique mechanical resilience, SC hydration, UVB filtration, and additional pH-dependent functions related to the humidity-dependent hydrolysis of filaggrin into aminoacids to produce the Natural Moisturizing Factor (NMF).

In addition, it contains a storage pool of pre-formed cytokines necessary to initiate the cytokine pro-inflammatory cascade. Finally all the corneocytes are surrounded by a membrane lipid envelop, necessary not only to link them to the extra cellular matrix (lamellae), but also to play key roles in intercorneocyte cohesion and SC hydration, functioning as semi permeable membrane that seals osmotically active molecules within the corneocyte, while still allowing transmembrane passage of water.

The knowledge of the cutaneous ultra structures are considered, therefore, particularly helpful in the

differential diagnosis of the ichthyoses, as well as many observed characteristic alterations, such as premature secretion of lamellar bodies or lamellar nor lamellar phase separation, cannot be considered diagnostic but clear indicators of abnormal barrier function.

Thus, the book by the use of old and new histophatologic techniques, tries to identify key ultra structural abnormalities at level of skin barrier, to assist clinician in the diagnosis of different types of ichthyoses **(chapter 1),** inherited clinical disorders of lipid metabolism **(chapter 2)**, inherited disorders of accepted desquamation **(chapter 3)**, and inherited disorders of corneocyte proteins **(chapter 4)**.

As previously reported, chapter 5 (***appendix 1, 2 and 3***) is totally dedicated to discuss the necessary ultra structural and histochemical methods necessary to control and understand the skin ultra structures. While in *appendix 1*, the related methods are described, in *appendix 2* glossary of terminology is reported, and in *appendix 3* molecular diagnostic resources name and addresses of laboratories and people involved are provided with the ichthyoses consensus group working on this subject from many years.

In conclusion, for a right potential diagnosis, the obtained ultra structural information should be always considered provisional, and of support to biochemical, immuno-histochemical or molecular genetic studies. However in accordance with the book authors "integrating the insight gained from molecular genetics with the dynamics of the epidermal response to the different ichthyose disorders, will point to new and effective forms of therapy".

At this purpose, this publication by its different and original approach regarding the pathogenesis of these disorders, may be of great help for all dermatologists, paediatric dermatologists, paediatricians, gynaecologists, and cosmetic chemists involved with patients affected by ichthyoses and alteration of the skin barrier.

In addition its reading will be useful for geneticists, dermatopathologists and marketing-oriented people that need to better understand all the problems connected with ichthyoses, and other diseases involving abnormalities of the skin barrier.

P. Morganti
Editor-in-Chief

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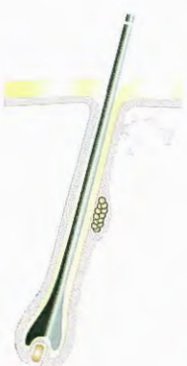

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