

PCIA Guangzhou 13th-15th March 2007 - a Technical Editor's personal view
by
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INTRODUCTION

The ASCS conference in Singapore had left us all a little weary, but we were refreshed after a weekend of rest and ready to enjoy the delights of Guangzhou.



The event formerly run by Step Exhibitions had been taken over by Reed and was as vibrant and exciting as ever. The dull weather did nothing to dampen the support of this event which was vibrant and buzzing with visitors. The conference and workshop programme had been well organized by Pam Jones and was richly attended by many of the visitors to the show.

It was impossible to do everything and this year we decided to spend a little more time on the conference and workshops than on the show itself - a good decision since the papers were excellent being presented by internationally renowned speakers who had journeyed over from the ASCS event in Singapore. We hope the organizers of both events liaise in their plans to take account of the importance of back-to-back conferences in the future. Perhaps the ASCC in Australia might also like to get involved in the setting of dates as long haul travel is expensive in both time and cost!

THE EXHIBITION

13th March 2007

This is a big show and it was pleasing to see that the Chinese speaking element seemed to have grown considerably since its last appearance in this location two years ago. This was far more indicative of the true growth of the Chinese manufacturing base, but the downside is that it is a lot harder for a visiting *gwai lo* to communicate with the stands.

Most suppliers seemed to be keeping their new launches for In-Cosmetics in Paris on 17th -19th April 2007.

HIGHLIGHTS

We apologise for not mentioning everybody, but the following section was a **personal** adventure at the exhibition and reflected the companies visited or where we stopped off for more information.

Arch

Kudzu Zymbiozome[®] Fermentum

Pueraria lobata symbiosome (root nodule) extracts offering free radical scavenging, enhances procollagen synthesis in fibroblasts and improves skin tone and elasticity. Arch Personal Care Products' latest introduction in its biotechnological active platform is Kudzu Zymbiozome[®] Fermentum (Assigned INCI designation: Water & *Pueraria lobata* (Kudzu) Symbiosome Extract). It is based on an extraction from the root nodules of the kudzu plant (*L. Pueraria lobata*), which is renowned for its beauty and versatility. Kudzu root nodules are enriched in a potent globin protein (leghemoglobin), affording skin brightening benefits and a key isoflavone (*puerarin*), imparting potent antioxidant properties to this extract.

Key product attributes include improvement in skin tone, free radical scavenging-ROS and RNS, promotion of procollagen synthesis as well as antioxidant properties. Kudzu Zymbiozome[®] Fermentum showed a dose-dependent increase in procollagen synthesis compared to untreated controls in human dermal fibroblasts at treatment levels greater than 1.0%. At the higher levels of Kudzu Zymbiozome[®] Fermentum treatment (i.e. 1.5%), levels of procollagen production increased by 37.4% over the untreated control and were found to be comparable to ascorbic acid.

Codif

Pheoslim

Slimming agent for the stomach. This extract of a brown algae *Phyllacantha fibrosa* is especially formulated to fight against excess abdominal fat. This slimming active is recommended for mature women and men. INCI Name: Water (and) *Phyllacantha fibrosa* extract.

Stoechiol

Anti-Wrinkles - For a quick lifting and removal of wrinkles. Stoechiol is a Spanish Lavender oil (*Lavandula stoechas*) also called Marine lavender, tested to evaluate its effects on the face wrinkles and muscular contractile activity. INCI name: Caprylic capric triglyceride (and) *Lavandula stoechas* extract.

Phycojuvenine

Phycojuvenine is a concentrated extract of the brown algae *Laminaria digitata* (Laminariales order, Laminariaceae family). It diminishes cellular aging markers, offers mitochondrial DNA protection by diminution of mitochondrial deletions, diminution of fibronectin expression and maintains a high level of chaperone proteins. It also causes a diminution in the proportion of positive SA β -galactosidase cells and shows a drifting of morphotypes into young forms. Phycojuvenine therefore protects against aging and even seems to work as a cellular rejuvenator.

Concentre Coralline. A bio-available Calcium concentrate. This concentrated Coralline officinalis extract has been found to be a bio-available source of calcium and improves cell cohesion, improves communication between keratinocytes and optimizes keratinocyte differentiation against both a hostile environment and reinforces epidermal resistance. INCI Name: Water (and) *Corallina officinalis* extract

Greensea.

For nearly 15 years Greentech has been developing and producing active ingredients from plants and biotechnology in cosmetic and nutraceutical fields. Greentech is increasing its specialisation in research and development of marine actives and extracts from seaweeds and microalgae as a result of the activity of its subsidiary Greensea which has its own production site. This division is located near Montpellier and unlike its competitors is on the Mediterranean coast on the shore of 'Etang de Thau'. The emphasis is on micro algae (as opposed to the normal macro algae) grown in culture using 250 photo-bioreactors with a capacity of 130L. This facility is complimented with an ultra-filtration plant, high pressure homogenization, chromatography and cold water agitators.

Croda

Croda launched a cold process emulsification system for creating elegant emulsions from milks to creams that was quick and simple with no need for specialised processing equipment. Formulating with MixXIN ME means unrivalled versatility. Simply add the water or oil phases to MixXIN ME, and you can achieve aesthetically pleasing products from economical milks to premium and elegant creams. INCI name: Caprylic/Capric Triglycerides (and) Glycol Stearate (and) PEG-3 Glyceryl Cocoate (and) Steareth-7. Conventionally, producing personal care emulsions would be considered an art. One must give careful consideration to the choice of ingredients, in which phase and at what temperature each component needs to be incorporated to ensure activity and efficacy to support label claims and skin feel factor. The final product must be economical to manufacture ensuring commercial viability. MixXIN ME takes all the guesswork out. Easily incorporated with either the water phase or oil/water mix, MixXIN ME does not require premixing and allows high internal oil phase loadings. A broad raw material

compatibility and cold emulsifying power ensures the activity and easy processing for key personal care ingredients from lanolin to peptides to silicones to preservatives.

The manufacturer claims exceptional cost efficiencies by cold processing (no heat or specialised equipment required), greater formulation flexibility and manufacturing ease, improved emulsion stability even at extreme temperatures, very efficient viscosity performance, enhanced sensory and aesthetic appeal with increased gloss, opacity and smooth after-feel, broad raw material compatibility from actives to oils to silicones, high internal phase loadings for even complex oils of up to 80 wt %.

Northstar Lipids

Northstar Lipids offer a fully integrated and supported supply chain and specialise in the supply of high value natural oils and have over 20 years processing and commercial experience, working with customers in the nutritional and personal care industries. Their focus is on sourcing and selecting seed crops and fruit seed lipids which contain high levels of Essential Fatty Acids (EFAs), the nutrients the body uses in tissue regeneration and hormonal balance. Years of nutritional research has demonstrated the health benefits of oils rich in Omega-3 and Omega-6 fatty acids and this work is increasingly showing how these also benefit the skin. Our area of expertise is in identifying oils which have nutritional benefits which can be applied to both dietary and skin care applications and we support this through clinical research and technical support.

They offer a broad range of oils to suit a variety of end uses, many of which are extracted from raw materials that we have grown under contract for us or which have been selected by us; by doing so you can be sure that the quality of the end product meets the highest standards of purity. Identifying and developing new products is integral to their business philosophy and the company are constantly searching for natural raw materials from which nutritionally beneficial oils can be extracted, these are then scaled up to full commercial production with all the relevant controls that today's market demands.

Grapeseed, Sunflower and Soyabean are suggested as basic carrier oils, Almond, Apricot, Avocado, Hazelnut, Sunflower and Peach Kernel as rapid emollients. Exotic oils like Hemp, Kiwi, Flax, Lime, Camelina, Passionfruit, Perilla and Sesame are suggested as skin conditioners with Echium, Evening Primrose, Borage and Blackcurrant are recommended for skin repair and anti-ageing products. The featured oils at the show were Lime Seed oil with a broad fatty acid profile and a pale green colour and sweet citrus odour and Kiwi Fruit Seed with a fixed triglyceride oil also rich in Alpha Linolenic Acid (ALA).

R.T. Vanderbilt Company

Vanderbilt were showing Vanatural a rapidly hydrating, water-washed bentonite clay that was a pure and natural suspension stabilizer, emulsion optimizer and rheology modifier for all topical products. It was particularly suited for creams, lotions, suspensions and other personal care products marketed as "natural". The INCI name for Vanatural is Bentonite and this material provides all the benefits of purified bentonite clay.

Arkema through Bronson & Jacobs

The Arkema's Orgasol® range for the cosmetic market Orgasol® is a range of ultrafine polyamide powders that are manufactured by the polymerization of lauryl and caprolactam, with process additives of synthetic and vegetable origin. The special synthesis process gives them an extremely narrow particle size distribution, and ensures that both the structure and the morphology of Orgasol® powders are very different from those of ground powders. Orgasol® ultrafine powders are essential to give skin care and color cosmetics formulations a very soft touch. Two nylons are available with different diameters and absorption properties on offer that give the Orgasol® range the wide-ranging expectations of the cosmetic market.

Agipal

AGIPAL is a French company that promotes natural raw materials for the cosmetic industry and is a specialist in essential oils and vegetable oils (e.g. Inca Chili Peru, Raspberry seed and Chilean Hazelnut virgin oils). Agipal also offered natural alpha bisabolol from Brazil, Essentiaderms (mixture of Essential Oils with defined properties), Cohobats (concentrated aromatic waters: Rose, Linden, Orange Flowers), Extracts (as Trinitea and Searose) and Phytoderms (botanic extract as Phytoderm Hydramare SG).

Chemidex

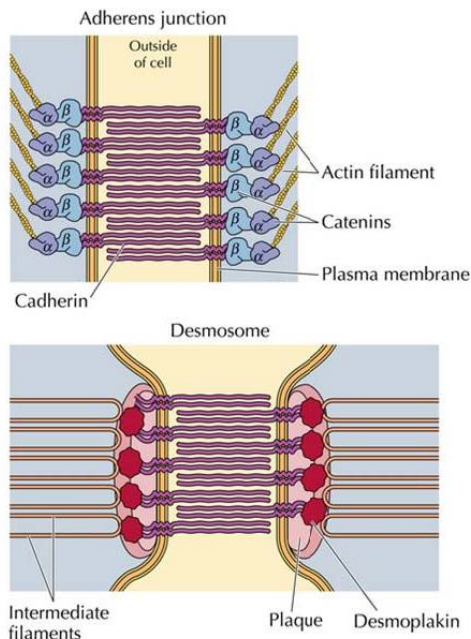
Chemidex has over 100,000 data sheets as well as MSDSs and starting point formulations with over 860 supplier listings in fifteen different languages. Their booth at the exhibition was well attended and this facility is highly recommended to all formulators seeking raw material information quickly and simply. The offered service is free.

THE CONFERENCE PAPERS

14th March 2007

Skin Cell Adhesion: Mechanisms and Molecules. Dr. Arturo Puig of Lipotec

This was one of the best presentations seen amongst many a conference. The graphics and skin structures shown in this presentation were stunning and the whole lecture a fascinating insight into the latest skin biology.



The importance of skin cell adhesion. Cell adhesion is important for the normal functioning of living organisms. The cell adhesion proteins hold together the components of tissues, are important for the function of migratory cells (leukocytes) and hold neuronal synapses together. The regulation of cell adhesion proteins is important during embryonic development. Inherited molecular defects in genes for adhesion proteins can cause diseases, such as cancer or Alzheimer.

New strategies for cosmetics. As we age, keratinocytes lose the ability to stick to the basement membrane. Keratinocytes can only proliferate while they are in contact with the basement membrane. It is important to fight the degeneration of the dermo-epidermal junction and maintain the connection between keratinocytes and the basement membrane by a recommended strategy using actives that can boost the synthesis of Laminin, Integrin, etc., in order to favour the cohesion between dermis and epidermis.

Similarities and Differences of Asian and Caucasian Skin of Asian and Caucasian Skin by Ricco B. Estanislao from Johnson & Johnson.

This paper looked remarkably familiar and it was admitted that this very fine paper had been presented at a previous conference, but to date had never been published. The sheer volume of data and complexity of this paper made it a welcome repeat.

The design instrumental measurements included fluorescence spectrophotometer –skin cell turnover and collagen cross-links. Suction and release was used to measure skin elasticity. Skin conductance for skin moisture. Trans-epidermal water loss to measure skin barrier integrity. Tape transparency to evaluate the sebum level. pH meter to show skin pH and visible light digital imaging and analysis for the measurement of skin color

The conclusions showed that some other earlier studies would have conflicting results. This study was done on subjects residing in their native location. Both Asian and Caucasian skin manifest similar changes in physical properties with aging, although the degree may vary. The increase in collagen cross-links with aging, manifests in deterioration of skin elasticity. Skin moisture, TEWL, sebum and cell turnover rate decrease explaining the tactile changes on skin, giving it the dry texture and dull look.

Both Asian and Caucasian skin also exhibit similar reaction to seasonal changes, however, there are still some differences that exist. Intact Asian skin provides better barrier from within (ie., higher moisture, lower TEWL). It is resistant to manifestations of lines and sagging.

Biomedicine and cosmeceutical by Professor Yang ZhiGang

An interesting paper on the Chinese skin care industry, richly illustrated with the history and products of China. A real treat for the delegate which we hope to be able to publish at a date in the future.

New Regulations in Asia by Dr. Alain Khaiat of Seers Consulting

Regulations in Asia are changing and adapting to the progress in Cosmetic Science. With ASEAN representing some 500 million potential consumers, China another 1.2 billion and India over a billion this part of the world accounts for no less than half of the world's population. Economic development is very diverse with Japan one of the most developed economy and on the other end Cambodia or Lao still being far behind. But the pace of

economic development is certainly one of the fastest ranging anywhere between 7 and 10% a year in those developing countries. The new ASEAN Cosmetic Directive is going to take effect as of January 1st 2008. China is also proposing a new regulation modeled after the EU Directive. Dr Kaiat reviewed those proposed or agreed changes, how they were going to impact the way the industry was going to do business and what were the major issues to be addressed. Some countries, like Japan, Korea or Taiwan had no plans to modify their regulations. He reviewed those briefly and we saw how different these were from those of the new block formed by ASEAN and China especially as Free Trade Agreements were being negotiated between them.

This was a very interesting and well presented paper that was well received by all of us that saw it.

Cosmetics regulation overview by Dr. Caroline Li, Head Regulatory Affairs, Asia Pacific Expert Services, Ciba Specialty Chemicals (S) Pte Ltd

Dr Li took on the daunting task of presenting not only the China regulation for cosmetics materials but also gave an overview of US, EU and Japanese regulation on cosmetics. The Chinese regulations appeared more bureaucratic than the European regulations, although the legislation was very similar. The Japanese regulations continued to be quite unique to Japan, fairly complicated to implement and certainly not for the faint hearted.

Guidelines for the safety assessment of a cosmetic product by Dr. Alain Khaiat of Seers Consulting

The purpose of his Guideline was to help the Cosmetic Industry in assessing the safety of the product as well as the Regulators in auditing the data contained in the Product Information File (PIF). This guideline served to highlight some of the important considerations in the safety assessment of cosmetic product in line with Article 8 d of the ASEAN Cosmetics Directive¹ which requires an “*assessment of the safety for human health of the finished product, its ingredients, its chemical structure and its level of exposure*”. This safety assessment is to be performed by a qualified professional defined as the “Safety Assessor”.

Dr Kaiat’s paper was a comprehensive discussion of the implications and requirements for safety assessment of a cosmetic product.

**THE WORKSHOPS
15th March 2007**

Test Methods, Design and Data Interpretation- Roderico Etanislao, Johnson & Johnson

Claims are an integral part of any product in the market. They are powerful in convincing a consumer to at least, think of buying or trying a new product released in the market. Claims, however, should always be properly substantiated, not only because of regulatory

requirement, but more importantly to ensure that consumers experience the benefits that are stated.

The articulation of the claim determines the appropriate type of substantiation that needs to be generated. Different *in vivo* and *in vitro* test methods and designs are presented in the fields of cleansing, moisturisation, whitening, acne and anti-aging, focusing on the scientific approach to properly evaluate these different skin parameters or conditions. Interpretation of different types of data generated from these tests: expert evaluation, instrumental measurements and subject self-assessment, were discussed. This was an excellent paper that could only leave many a delegate feeling intensely jealous of the wonderful equipment available to the workshop speaker!

Efficacy Performance Test for Rinse-Off Hair Care Product - Christina He, Dow Corning.

Formulators needed to develop improved formulations at a faster pace than before due to the shorter and shorter product life cycles in the Personal Care Market, especially the shampoo market. This workshop explained how both instrumental and human sensory test methods could help the formulators to evaluate rinse off hair care products more efficiently. They developed a combing test on a new combing machine that they had developed. The key parameter on this machine focused on the dry combing force. This instrumental test allowed formulators to have an objective measurement of formulations' dry combing performance immediately. In-house wet and dry sensory test by using hair tresses: With these methods, several attributes such as smoothness, softness and ease of combing were evaluated. By applying multiple comparison techniques and statistic analysis methods, a very good understanding of a formulation performance for a broad range of parameters was gained. Several recent studies showed as examples: correlation between instrumental and sensory test; impact of different silicone levels in a formulation on product performance; the importance of right combination between silicone material and cationic polymer and the performance variation between virgin and bleached hair stresses.

Optimising Clinical Efficacy via Optimising Penetration - Johann Wiechers, Uniqema

In his presentation Johann Wiechers, currently still at Croda but soon to be independent as a consultant in the field of optimising skin delivery from topical formulations, spoke on exactly that issue. He indicated that at least 95% of current cosmetic products are not formulated well with respect to the skin delivery of the active ingredient. He spoke about a systematic approach to enhance the skin delivery of active ingredients in a three-step process. He first identifies a primary emollient in which the active ingredient is very soluble but the driving force for diffusion is very low. This ensures that there is enough active ingredient in the formulation in the first place, the first requirement for efficacious skin formulations. He then identifies a secondary emollient in which the active ingredient is not very soluble but still miscible with the first one. This ensures that there is a good driving force for diffusion of the active ingredient into the skin. He finds these two

emollients not by doing many experiments but by calculating their so-called RPI's, their Relative Polarity Index, which is a measure for the chemical difference between the active ingredient and the emollient. Via a non-disclosed mechanism, he then optimises the ratio between the primary emollient, secondary emollient and active ingredient and this combination guarantees optimal delivery of the active ingredient. Using octadecenedioic acid as an example, he also showed how this enhanced skin delivery formulation also resulted in an enhanced skin efficacy. In his own words "let the active ingredient sweat"! He then continued by showing that the Formulating for Efficacy approach can also lead to a reduction in the dose of the active ingredient without losing skin efficacy. Finally, less could be more! But he will have to guide you through his system to obtain these benefits.

Johann deserved to be named the "man of the match", his huge contribution at the ASCS in Singapore event and then his considerable contribution to the PCIA event in Guangzhou was nothing short of awe-inspiring. His future with Uniqema following their take over by Croda remains uncertain, but Dr Wiechers has a huge contribution still to make as the future president of the IFSCC and we are sure he will succeed whatever fate has in store for him.

Release and Penetration .Important Aspects to Achieve In Vivo Efficacy of Cosmetic Ingredient- Dr. Joachim Roeding, Symrise

Modern cosmetic research strategies to identify new active ingredients are focusing on the screening of numerous substances using very sophisticated high throughput *in vitro* enzyme or skin cell culture assays. Many new molecules with high *in vitro* efficacy can be identified with such techniques within a short time frame. However excellent *in vitro* activity does not necessarily correlate with high *in vivo* efficacy when applied in a cosmetic emulsion on human skin. There are two major borderlines that have to be overcome by any active ingredient. First of all the active ingredient has to liberate from the emulsion system within a desired time frame and following a preferred time-concentration profile. Secondly any active ingredient, except e.g. UV filters acting on the skin surface, has to penetrate into the skin to reach its specific target like the *stratum corneum*, the epidermis, the dermis or the subcutaneous fat layer. Regarding liberation behaviour many different types of cosmetic formulations, a huge setup of encapsulation techniques and specific liberation enhancers can be used to design and to optimize liberation kinetics of actives. Regarding the penetration challenge, the outermost layer of the human skin, the *stratum corneum*, is mainly responsible for its barrier function. Many topically administered actives do not have the ability per se to penetrate the stratum corneum. In these cases modulation of the skin penetration profiles and skin barrier manipulation are necessary. A skin penetration enhancement can be achieved either chemically with penetration enhancers, physically with e.g. iontophoresis but again also by developing an appropriate cosmetic formulation. In contrast there are cases where skin penetration of the active ingredient of the formulation is not the aim of the topical administration. Therefore, penetration reducers can be used to prevent chemicals entering the systemic circulation. This presentation gave a brief overview and selected examples of cosmetic applications about the impact of the type of cosmetic formulation and the use

of enhancers on liberation and penetration behaviour of active ingredients for cosmetics. In this context modern analytical tools to investigate liberation and penetration profiles were described and discussed.

CONCLUSIONS

This was without doubt an excellent event and in our opinion the conference and workshops were the best ever. The sheer increasing size of the exhibition and technical content of the conference programme make a full review ever harder. We hope that this personal view gives a glimpse of the value of this show.