

SWISS SCC Annual Meeting St. Gallen 2013

Monasteries – The Cradle of Sciences (January 18-19)

After the general meeting of the Swiss SCC the lecture session could be started. Petra Huber, Chair of Scientific affairs, who also organized the annual meeting lead through the afternoon session.

Peter Johannes Weber, a monk from the monastery of Einsiedeln started the lecture session with his presentation about »Monasteries – The Cradle of Sciences«. In his presentation *Peter Johannes Weber* is making the link between monasteries sciences and our today's life. When going shopping we come across products that are very well known to us although we don't connect them with the monasterial achievements. There are for example medicinal products, beers, wines and cheeses that are originated by monks in different monasteries. Monasteries added a substantial contribution to our culture.

The word monastery comes from the Latin word *claustrum* which means something like «closed place» a place that for the rest of the world is not accessible. The first monasteries originated from eremite colonies in Egypt and Palestine in the 4. Century. In the year 529 *Benedict von Nursia* founded the prototype of the occidental monastery and the Benedictine Order in Monte Cassino. He established a rule for the cohabitation in the monastery, the so called *Regula Sancti Benedicti* that during many centuries shaped the development of the monasteries. The Benedictine monasticism is based upon this rule and is up to today the formative monastic form for the occident.

From the beginning monasteries were not only a place of religious life but also centers of skilled manual and agricultural art as well as the research und collection of knowledge. They played therefore an important role for the receipt of with the fall of the antiquity lost knowledge. In the middle age monasteries were important for the education of the occidental culture and center of education. Cultural work



The concentrated audience

took almost without exception place in monasteries. Friars copied old books, made artworks and maintained monastery schools for the young generation. Fundamental culture techniques like reading and writing was during a long time practically only prevalent in monasteries.

The monasteries lead and still lead own skilled manual and agricultural operations and developed practical techniques in agriculture in plant breeding or herbalism and healing arts that they partly passed to the population. Hence monasteries acted as bases of conversion and cultivation and became important development centers. The monks collected writings of ancient authors about botany and herbalism and multiplied them. Some Orders dedicated themselves above all the middle age monastery medicine. Strongly scented plants were specifically used in medical applications. Not least the herbs from the mediterranean area were popular for doctors, pharmacists and the folks due to their distinctive scents. The monasteries gathered experience in the use of medicinal herbs and their active ingredients. The own degree of knowledge was complemented with verbal tribal knowledge of the folk medicine that was implemented into the

science. Famous for it are tracts of the Benedictine *Hildegard von Bingen*. Partly earlier known tracts were integrated, some was totally new respectively not yet been fixed in written form.

The next speaker, *Marc Roesti* – Mont Blanc Beauty concepts, could give us an insight about »New natural scents from plants«. The word *perfum* comes from *Per fumum* which means scented fume. Since *Ramses II* perfumes are a religious symbol. And incense is even today still a symbol for lavation. *Louis IX* let every day a new scent be created and *Madame Pompadour* let her gloves been scented by so called »*Maîtres Gantiers*«. *Farina* finally created the first Eau de Cologne 4711 in 1728. *Linda Buck* became the Nobel Prize in 1999 for the proof of the 350 scent receptors. The nose determines whether we find somebody sympathetic or not. Body smells are ambassadors. The nose is saving memories and it is an alarm system at the same time. Dogs are smelling 100 times better than humans and butterflies even 10000 times. Dogs are following a scent trace zigzagways to avoid habituation of their nose. This phenomenon is also valid for humans. One cannot smell the owns' perfume any-

more which leads to the fact that one tends to use too much. The language of perfumes is to describe their scent taking the different parts of the perfume into account. It describes fresh notes, woody notes, oriental notes and flowery notes.

ents like glucan from bakers yeasts and plant stem cells from plant cell cultures.

The immune stimulating properties of yeast as raw material have been chosen to create an active Beta-Glucan. UV-B rays

The cells are washed and homogenised to release the secondary metabolites.

Cosmetic active ingredients from stem cell cultures are used to treat skin stem cells. They contain stem cell typical epigenetic factors. The choice of plant species with secondary metabolites that protect and promote stem cells are preferred.



Dr. Philippe Auderset, President of the SWISS SCC

An international standard for natural bio cosmetic does not yet exist. The known labels allow only a limited number of perfume ingredients. Natural essential oils based on steam and molecular distillation, isolates like ingredients of natural resources and fractionated distillation, natural Citral (lemon) and natural Linalool (rose wood) and natural ingredients extracted by alcohol. Not allowed are so called absolutes and resinoids, where chemical solvents are needed (Jasmin, Lilly absolute) and musk bodies (so called fixatives).

The pallet of allowed ingredients is much restricted. It is almost impossible to create a perfume which is free of allergens. Natural scents are much more expensive than usual perfumes. The natural scent oil mainly has a colour. The creation of flowery notes is strongly limited due to the restriction of absolutes.

The afternoon session continued with the subject »Baking and brewing, Yeasts and plant stem cells in cosmetics« by Dr. Daniel Schmid – Mibelle Biochemistry. Baking and brewing are the traditional biotechnological processes. More modern biotechnological processes are nowadays used to create cosmetic active ingredi-

are weakening the immune system and the body defense against infections. Even before a sun burn develops, the immune system of the skin is damaged. Langerhans cell reacts very sensitive to UV rays. Beta-Glucan is activating Langerhans cells and makes them more resistant against UV-rays. Increased phagocytosis activity of the macrophages leads to a faster disposal of irreversibly UV-damaged skin cells. 400 kg baker's yeast and 25 extraction steps are necessary to produce 8kg of beta-glucan. The natural polymer provide protection against TEWL, protection against loss of hydration and protection of skin lipids against UV damage.

Plant cell cultures are nowadays a part of the green biotechnology. The cultivation of totipotent cells requires the production of a sterile botanical. The plant is cut to induce callus tissue. This is the process of wound healing. The addition of Auxin, a phytohormone stimulates the formation of dedifferentiated cells (totipotent cells, stem cells). The growth of callus in liquid culture leads to proliferation and a specific medium prevents differentiation. Suspension cultures are grown in bioreactors with oxygen and without light (chlorophyll free). The batch can be harvested after sugar metabolism.

After a view into the world of stem cells Dr. Reto Hess – Impag AG gave us an »Introduction into modern knowledge transfer in the era of IT« – an update of the most important data sources in the cosmetic everyday life.

The number of scientists is growing. In the middle of the 17th century it was smaller than 1 Million. From 1850-1950 it grew from 1 Million to 10 Million and from 1950–2000 it grew from 10 Million to 100 Million.

The technological capacity to calculate information with the help of computers grew within the last 25 years annually by 61%. Information are today much more important than ever before. The internet offers an almost unlimited number of possibilities to get new information. The most important ability is the finding of the right information which is not always easy to achieve. Vast quantities of search results due to ineffective search engines and terms let it become difficult to judge the credibility of the results. Children and youth protection is becoming an important factor too. Mistakes, once entered into the system are quickly spreading and the danger to copy the mistakes is big. There are different search engines like common ones, web catalogs, special search engines and meta search machines. Common Search engines are often used. Capable computer search the Web again and again for new information. Information is saved in data networks. Partly there is commercial use and for a good search results you may even pay.

Web catalogs are designed by humans. The desk is evaluating the pages in the internet and sorts them into a keyword catalog. Web catalogs are suitable to search for a specific subject or area of interest. Examples are travel, computer, health. Yahoo has one of the best known catalogs and the yahoo team adds to each of the websites

some additional information. Firefox, Lycos and Altavista offer catalogs too.

Special search engines are covering only a specific area. They have a crucial advantage. The data quantity is manageable. The probability is big to get useful hits. Examples are online-shoppings, travel, medicine, hobbies and news.

Meta search machines are searching several search engines at the same time. It could take a little longer than the search in a common search engine however it is still recommendable if the desired result could not be obtained from a single search engine. Even the best search engine grabs only a part of the web. The example Metagear of the university Hannover (D) is searching 30 German search engines, sorts double entries and lists the results at the end of the search. To estimate the quality of the pages requires the identity of the owner, the background of the author and its objectivity. Is the website up to date and what is the technical quality if the website? Another subject is embedding into the issue-area.

The afternoon session ended here and the audience went for dinner to the nearby Pfalzceller, a historic cellar in the middle of St. Gallen.

The next morning *Maria Lüder*, Chair of Public Relations, supervised the second session of lectures. The first lecture was given by *Dr. Franziska Fleischli* – ZHAW Wädenswil with the title *Inspectio* – »A View into the Skin«. The skin is the biggest organ and it is the natural barrier between our inside and the outside. The condition of the skin is depending on a number of factors that we can often influence. The addition of substances on skin, penetration behaviour and changes of skin are different from person to person. A look under the surface of skin shows some specifics. The barrier layer the *stratum corneum* has a specific thickness, a certain water content and with it NMF factors. The view into skin can well be made with a non-invasive method called Raman Spectroscopy.

The method is laser based, non-invasive and can be used *in vitro* and *in vivo*. Raman spectroscopy is making use of molecular oscillation

and a shift of the laser's wavelength. The more molecules are available, the stronger the signal becomes. Skin penetration of antioxidative cosmetic actives can be measured with this method. Active ingredients can be extracted from plants like coffee. In an internal project of the Life Sciences & Facility Management group the extraction of antioxidants, the implementation of the actives into cosmetic formulations and their penetration to skin is the basis to build a value chain that might offer cooperation possibilities with industry partners.

The next speaker went far into the past. *Dr. phil. Claudia Rüttsche*, Director of the Kulturama in Zürich presented her lecture *Sanus per Aquam* – Eau et Toilette – Hygiene and Beauty. The lecture was mainly build of beautiful pictures from an exhibition about Hygiene and Beauty in ancient times. We were lead through the development of at least a kind of hygiene in former times. Often it was easier to cover a smell than to take a bath. The equipment for cleaning was interesting to see and was so far away from our today's tools. The view into the past showed that it was obviously not always pleasant for the people living at that time. For us it caused a smile on our faces, well knowing that today personal hygiene is so much easier to obtain.

The next presentation unfortunately could not be held by the author *Prof. Dr. Hostettmann* himself however *Petra Huber* tried to summarize the lecture for the audience. *Hortus botanicus II* – Herbalism in cosmetics. For centuries, man has used plants for food, for clothing, for healing, for cosmetics and as drugs of abuse. Over centuries, he has learned to distinguish good plants from toxic ones. Plants have played a significant role in Art and History and have left their mark on the destiny of many men.



Petra Huber, organizer of the event

Oldest Egyptian medical papyrus was written around 1550 BC (kept at the library of the University of Leipzig). It was found by *Edwin S. Smith* (1822-1906) at Luxor in 1862 and purchased by *Georg M. Ebers* (1837-1898) who translated it. The papyrus was made of 110 pages (18.6m x 30cm) describing more than 700 medical substances, such as poppy, willow, aloe, saffron, etc.

Nofretete (14th Century BC) already knew Aloe vera juice. She had her beauty thanks to Aloe vera and because she wanted to be beauty even after her death, she tried different poisons on her slaves before her suicide. The juice of the aloe leaves contains aloine which has a strong laxative effect.

The viscous gel is used in the cosmetic industry as moisturizer. In the mean time aloe vera has found its way into food applications like yoghurts. Further plants like the Edelweiss, the great yellow gentian, *Hypericum perforatum*, *Melaleuca ssp* and others were described in their way of working with respect to the use in cosmetic applications.

The final lecture was held by the first beer sommelier of Switzerland *Richard J. Wüst*, educated (of course) in Germany. His subject was »*Cerevisia* – The art of fermenting and brewing«. We learned much about the history of beer brewing and the different kind of beers that were developed with time. Somehow we came back to the starting point, the monasteries that played a major role in the development of brewing. Blond beers, dark beers, strong and less strong beers with respect to alcohol content and taste were well described. Listening to this subject without anything to drink but water was a challenge towards the end of two very interesting days. The lecture fortunately ended with a beer tasting aperitif that was well received by all of the participants.

The beer tasting at the end of the annual meeting invited for an intensive networking in a relaxed atmosphere and it took much longer than expected.

We are already looking forward to our next annual meeting. Who knows which kind of surprise will wait for us next time? ▲