Herbal Extracts in Support of Natural Cosmetics Preservation

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Introduction

Natural cosmetics, even if this expression is not exactly defined and more or less strictly interpreted by different players, represent a growing market on a worldwide base, whereas normal products are in a stagnating phase in most countries.

All cosmetic products containing water in combination with oils and polysaccharides or proteins need preservation since they represent an ideal base for germ growth. The 7th amendment of the Cosmetic Guideline 76/768/EEC prescribes declaration of the minimum durability of cosmetics if this is less than 30 months. Further advice is necessary if the durability is connected to special conditions, i.e. if the products should be kept in the fridge or not be touched by hands. Products with a shelf life of more than 30 months were not previously marked but now need a special symbol indicating the period of safe use after opening. Since short durability and special precautions are not very practicable in terms of distribution and application, preservation is a hot topic generally, especially however in the growing field of natural cosmetics.

The current article suggests some botanical CO_2-extracts with anti-microbial properties. Such extracts can support the preservation system of cosmetic products and thus reduce chemical additives which are sometimes under discussion. Apart from their preserving functionality they are also bio-active components for deodorising purposes, for treating wounds, skin impurities, athletes' foot and they can even have additional anti-inflammatory or anti-oxidative benefits.

Essential Oils and Curcuma *xanthorrhiza* extract

A huge class of potential anti-microbial ingredients are the essential oils, especially those with components like thymol, eucalyptol, carvacrol, eugenol and isoeugenol, etc. but they have the disadvantage of introducing a strong smell and some of them are either on the index of cosmetic allergens according to the European Cosmetic Guideline or they bear the risk of a sensitising potency if dosed in effective amounts[1].

One extract in this category is however worth mentioning especially for oral care application. This is a *Curcuma xanthorrhiza* CO_2-selective extract, containing 80-90% essential oil with about 25% xanthorrhizol but no yellow colouring curcuminoids. The curcuma genus belongs to the great zingiberaceae family which includes well known species like ginger, cardamom or galangal, all originating from Southeast Asia and Australia. *Curcuma xanthorrhiza* is a native plant of Java, Bali and the Moluccas. Although the *Curcuma xanthorrhiza* variety is not as well-known as *Curcuma longa* (turmeric) it has been traditionally used in food.

While all curcumas are reported to be used in case of bad breath in ethno-botanical studies it is interesting to note that xanthorrhizol which is specific for the *xanthorrhiza* variety has been demonstrated to be a powerful means against oral pathogens in general and *Streptococcus mutans* in particular, the main bacterium responsible for dental caries. Xanthorrhizol eradicates germs quickly within minutes and in a dosage as low as 5µg/ml [2]. In terms of practical application, a dosage of some hundred ppm of the supercritical *xanthorrhiza* extract is recommended in the finished product. Xanthorrhizol also demonstrated anti-bacterial potential against *Actinomyces viscosus* and *Porphyromonas gingivalis* which are responsible for periodontitis. A lower activity was found against *Candida albicans* and *Lactobacillus* species[3].