

Less agents for more care? Skin care with few active agents

published in *Beauty Forum 2021* (10), 56-58

A long-term trend in cosmetics is to pack a large number of agents into the preparations in order to improve their convenience and enhance the optical criteria. The concept of "All inclusive" includes active agents and, similar to multivitamin pills, not only facilitates the work of the marketing department but also pleases customers as they can provide for all contingencies and have the best product to show. May be, or maybe not?

There also is an opposed trend based on the idea of reducing cosmetics in order to achieve the same or perhaps even better results. It may be presumed that profitability is in the foreground here. This can be a very interesting issue, in particular, if the focus is on the purse of the customers. Other aspects could be more important, though.

Ecology

Can the packaging waste, in other words, dispensers made of various materials and covering boxes that all pollute our environment, be reduced to the bare necessities?

Are the used raw materials sustainable? Is their local production, cultivation or chemical synthesis in accordance with the preservation of our environment and the achievement of the climate objectives?

How are the components of cosmetic preparations biodegraded? Is the harmless disposal via garbage- and sewage treatment plants ensured on the one hand and on the other hand can the products be physiologically metabolised in the body without any problems? There still are more questions to ask.

Sustainable active agents

The sustainability debates have readily neglected the effects of cosmetic preparations. They should, however, be the most important criterion for the preparations. Hence the number of ingredients could automatically be reduced and the relevant components then used in adequate concentration. Homeopathic mixtures, in other words, compounds with numerous low-dosed agents and sometimes declared as technologically new active agent complexes would simply be omitted. Certainly there also is a cap on the doses. This particularly applies to antioxidants that cause radical chain reactions in high dosage and impair the endogenous

oxidoreductases but also the oxidoreductases of the skin microbiome.

Verified dosage-efficacy-relations should result in fewer applications of the preparations on the customer side, above all in the case of long-term treatments. This also indirectly contributes to the ecological aspects.

In order to achieve and document sustainability, a routine recording of skin analysis data is useful eventually in combination with a camera-based assessment. Reliable study results regarding the used ingredients also are helpful. They are published in technical literature and most of the data can be accessed on the respective websites. Google Scholar, the search engine for the general scientific literature research, also can be used for information. The manufacturers and raw material suppliers can serve as another source of information. And finally the personally experienced empirical values gained in the long-term practice in the institutes are a worthwhile supplement in this context. Passing on this information in the form of customer advice is a competitive advantage over web shops.

Use preparations sparingly

A sparing use of preparations per se excludes excessive skin care and, as experience tells us, causes less skin reactions, blemished skin or infections caused by anaerobes.

With regard to the day creams equipped with UV filters and applied in interior spaces or with anti-pollution ingredients ("detoxification") in preparations for the outdoor use it has to be mentioned that a purposeful care of the skin barrier is sufficient and that the strain for the skin caused by such superfluous chemicals can be avoided in this context.

In the interest of users, routine acid peelings should be strictly limited to dermatological indications in order to preserve the limited regenerative capacity of the skin.

Cosmetic additives

Often there are more cosmetic additives listed in the INCI of the preparations than alleged active agents. It should however be mentioned that the tendency is declining here. More and more manufacturers abstain from using the preservatives mentioned in the annex of the German Cosmetic Directive. Emulsifiers are increasingly substituted by physiological alternatives such as mono-/diglycerides and/or phosphatidylcholine (cell membrane component). This involves that cosmetic additives in the form of synthetic antioxidants (see below), co-emulsifiers and spreading agents can be omitted.

Customers may have acceptance problems with products following the minimalistic concept, particularly then when an agreeable scent or the pleasant surface sensation of silicones is missing. A further issue is that minimalistic production not necessarily results in a less expensive product. The situation can be compared with the products grown with organic farming methods without fertilizers and pesticides and the lower yields involved.

A key advantage of the reduced number of ingredients is that it also results in a statistical decrease of intolerance cases in the form of allergies and irritations. In other words, one extract added to the preparation instead of three extracts only means a third of the risk due to partially undefined components.

Back to the cosmetic additives: Although they appear as chemically homogenous substances on the INCI list, they often are mixtures, similar to the extracts. Classic representatives here are polyethylene glycols, abbreviated PEG, that are used as emulsifiers, consistency- and filming agents; they all have a number at the end of the INCI code that indicates the statistical average of their chain length respectively the highest peak within the curve of their particle size distribution. What is more, their chemical stability also has to be ensured by adding further antioxidants.

The classic representative with respect to non-degradability is the complexing agent EDTA (ethylenediaminetetraacetic acid). Paraffins and mineral waxes also are non-degradable. They are substance mixtures too. It can now be argued whether they are cosmetic additives or active agents. In the case that they serve as occlusive release medium for lipophilic active agents, they are cosmetic additives. In terms of the wrinkle reduction that occurs with the above-mentioned conditions, they have to be classified as active agents, although the wrinkle reduction is not sustainable.

Mono-substance sera

Mixing the actually needed skin care components in a modular way is the opposite strategy to the concept of equipping cosmetic preparations with all kinds of substances in order to provide for all contingencies. This concept requires effective sera that either are applied one after another, or in the form of a mixture or alternatively in combination with appropriate base creams, -gels or -lotions. It is advantageous to use the data measured with diagnostic units as a base and then prepare the adequate compounds and combinations. Associated here is a reduced stock-keeping of various finished products.

Additional aspects

Abstaining from animal substances promotes the reduction of intensive livestock farming with all the side effects on the environment.

The statistical incidence of adverse effects (irritations) of multicomponent systems is managed with cosmetic additives that make the skin less sensitive to external irritations. According to the recommendations of the German Federal Institute for Risk Assessment (BfR) such kind of chemicals should be avoided.

Conclusion

The minimalistic concept still does not set the trend, yet it is sustainable and means to concentrate on the essentials and stay away from many unnecessary "nice-to-haves". This involves that the consultation expertise and the skilled work of cosmeticians take on a more important role.

Dr Hans Lautenschläger