

The “Natural/Organic Story”: Myth against Reality

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DOES IT HAPPEN TO YOU AS WELL?

The Household and the Nutraceutical industries, as well as our beloved Personal Care field, are the markets we already touched base on during the first part of this 2019 series of articles published by H&PC Today, TKS Publisher. We have recently discussed different perspectives of the Microbiota, which is, as we already know, one of the hottest trends of the Cosmetic industry and a well-established milestone in the Nutraceutical one. Now, it is time to move onto another trendy topic, loved / hated and undeniably on everybody's lips: the Natural & Organic movement; don't try to tell me you don't perceive it everywhere... while watching the TV, when you go to the supermarket, at the restaurant, doing shopping, ... It seems that everything has to be organic to be worth buying. In the personal care field, this is undeniable: the natural trend is one way or another of everyone interest; this is confirmed by market data showing how the natural and organic cosmetic & personal-care segment has been steadily growing for the past decade: the worldwide turnover of natural cosmetics amounted to approximately 8.4 billion USD in 2010 (1) and by 2020, its growth is estimated to reach 16 billion USD at a CAGR of 10% (2). Obviously, this made me wonder whether the same is happening in other market segments such as the Nutraceutical and the Household ones.

According to a survey on finished products worldwide launched in the past five years, and claimed to be somehow organic or natural (see researched claims in Table 1), it is evident that this trend is not only driving the Personal Care field, but influencing the Nutraceutical and the Household, as well (3). As reported by the survey, more than one third of all the nearly 800.000 finished Cosmetic products launched was claimed to be *Botanical/Herbal*, this was the most used claim on Personal Care products and its use has increased from 2014 to 2018. As for the Household field, the most used claim was *Ethical/Environmental friendly* (nearly



40% of the total), also *Botanical/Herbal* has been quite common in this sector, making more than 10% of all the products. Interestingly, looking at the survey results, it seems that this market ranks product naturalness and "greenness" higher than safety, efficacy and ease of use: the *Environmental Friendly* and *Botanical* claims are more used than, as an example, *Refillable*, *Dermatologically tested* or *Time-speed*. On the contrary, the Nutraceutical market is more interested in product efficacy: among the 10 most used claims, 5 are dedicated to efficacy (i.e. *Slimming*, *Energy*, *Immune system*, *Brain and Nervous system*...). However, in this case too, among the 3 most used

claims, *Botanical/Herbal* is the second most used one, with more than 35% product launches making such claim.

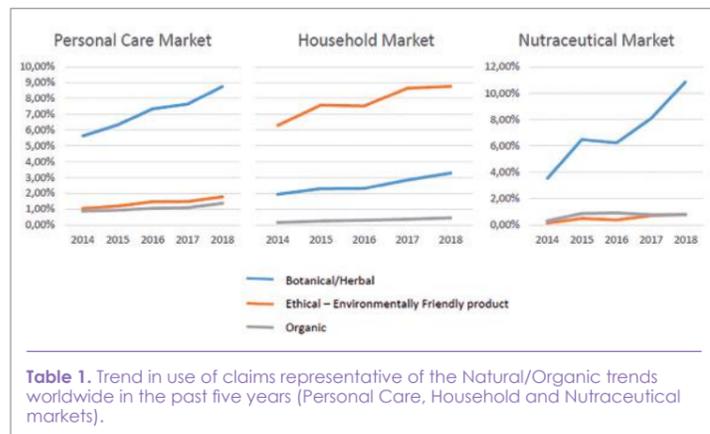


Table 1. Trend in use of claims representative of the Natural/Organic trends worldwide in the past five years (Personal Care, Household and Nutraceutical markets).

A look into the Personal Care Field

The regulatory framework applying to Personal Care and Cosmetics does not provide, at the moment, any official and approved definition on what a Natural/Organic product is, and how to deal with these types of raw materials and finished products. Contrary to the Food market, where the Regulation (EC) 834/2007 defines what "Organic" means and

gives indication to the whole production chain (from agriculture to finished products on the market), in Cosmetics we do not have any official framework/guideline indicating how to manage natural ingredients and/or formulations. To be exhaustive and complete, it is true that the REACH Regulation 1907/2006 provides definitions in terms of *occurring in nature* and *not chemically modified* substances (Table 2), but these are intended to list some specific materials entitled to particular derogations regarding their Registration procedure or exemption. Currently, in the absence of an official Regulatory framework, Cosmetics formulators and producers dedicated to the Organic world, usually work with **private Natural/ Organic standards**,

founded and managed with the objective to provide criteria intended to obtain natural/organic certifications and product labels. It is important to underline that these standards are not recognized with a legal value. Examples, well known among insiders and experts, are the COSMOS and NaTrue standards. It is undeniable that they benefit from an increased Consumers' awareness of green themes, which has led to a rapid growth of this market segment.

| Substances which occur in nature (Article 3; Par. 39) | Not chemically modified substance (Article 3; Par. 40) |
|---|---|
| A naturally occurring substance as such, unprocessed or processed only by manual, mechanical or gravitational means, by dissolution in water, by flotation, by extraction with water, by steam distillation or by heating solely to remove water, or which is extracted from air by any means | A substance whose chemical structure remains unchanged, even if it has undergone a chemical process or treatment, or a physical mineralogical transformation, for instance to remove impurities |

Table 2. Definition of "Occurring in Nature" and "Not Chemically Modified" substances according to Reach Regulation 1907/2006 (Article 3).

Additionally, despite being again far from a recognized legal framework, a new **ISO standard (16128)** has been recently published. It does not address products communication such as claims and labelling (any certification is here provided), but makes available guidelines on technical definitions and criteria for natural and organic cosmetic ingredients.

Formulating with Natural Ingredients

The hot yet fair question is "what is the benefit of formulating with natural and organic ingredients?". Technically speaking, from a mere formulation standpoint, there is no benefit in formulating with such ingredients: one could well argue that the opposite is the case. Natural and organic ingredients seem not to make the process of formulating easier nor the finished products any more performing or safer. If little scientific evidence can be found supporting the idea that organic food is better (i.e. healthier, containing more nutrients, etc.), it is an even harder task to prove the use of natural & organic ingredients



can deliver measurable skin benefits that are superior to those of "more synthetic" counterparts. Availability of privately certified natural and organic ingredients has massively increased in the last few years: for example, the database published by COSMOS listing the ingredients allowed in certified products has gone from approximately 3233 to 5469 non-organic ingredients (commercial references) in the last two years; the same growth trend applies to organic-certified ingredients. If this looks like "big numbers", one should think that the International Cosmetic Ingredient Dictionary and Handbook lists in excess of 22000 INCI Names, which roughly corresponds to more than 80000 commercial references. Obviously, no Formulation Chemist will use that

many ingredients in their daily job, but, in perspective, this might give an idea of the scale of challenges faced when formulating natural & organic cosmetic products.

Now, let's focus on the most important of the parameters characterizing a cosmetic finished product: its safety. We all know that the safety of a molecule / of a cosmetic ingredient necessarily lies in its chemical structure, and that the source of the substance (natural, naturally derived, synthetic, ...) has little to do with its security towards the skin. At the end, the choice whether to use or not natural / organic ingredients and to follow the "green approach" is entrusted to cosmetic formulators and producers; in any case it cannot exclude the release on the market of safe products for end users. This is and remains a cornerstone, guaranteed by the European Cosmetic Regulation 1223/2009.

Preserving with Natural Ingredients

If formulating natural is not always as easy as it might seem, what is for sure even harder, under the natural/organic umbrella, is the preservation step. It is well recognized that natural ingredients are more prone to contamination than synthetic ones (4); in addition to this, increasing marketing pressure and regulatory restrictions have caused the decrease of accessible and usable molecules to preserve cosmetic formulas (5). Nonetheless, as already stated in previous articles of this series, the preservation step is a key phase in formulations development: only properly preserved products will be microbiologically safe and stable.

The choice of a suitable, safe and effective preservative system is such important that in the European Cosmetic

Regulation 1223/2009 a dedicated positive list (Annex V) includes all approved substances to be used for this scope; some of them are of synthetic origin, others can be naturally derived. Additionally, the Personal Care market is more and more approaching the use of molecules not listed in Annex V, but characterized by remarkable antimicrobial properties, making them good enhancement, largely used for the protection of finished formulations.



Also the natural / organic approach, recognizing the huge importance of the preservation step, pays careful attention to it: the majority of private natural/organic standards propose their own lists of anti-microbial (Preservatives and enhancers) to be used in order to get the natural/organic certification. Having a look at these lists, from the writer's position, it is not that immediate to understand which is the rationale driving substances inclusion or exclusion.

This uncertainty can be figured out in Table 3, where we compared two preservatives: one is approved by most private natural/ organic standards and the other is not. A and B molecules are both listed in annex V of the Cosmetic Regulation 1223/2009; they are classified under CLP (harmonized classification) with indication of the below reported Hazard statements –as it happens for the majority of Personal Care preservatives approved in Europe-. In addition to this, molecule B is also listed in annex III of the Cosmetic Regulation for its potential allergenic activity. Molecule A is not approved by any organic/natural private standard, on the contrary, molecule B is allowed.

| Personal Care preservative | Natural/Organic approved | CLP Harmonized Classification | Regulation 1223/2009 Classification |
|----------------------------|--|---|--|
| Molecule A | Not approved by any of the private natural/ organic standard | H302 – Harmful if swallowed H319 – Causes serious eye irritation | Annex V (Preservative) |
| Molecule B | Approved by the majority of the natural/ organic standard | H302 – Harmful if swallowed H332 – Harmful if inhaled | Annex V (Preservative) Annex III (Allergenic potential) |

Table 3. Example of approved and not approved (by private organic / natural standards) Personal Care preservatives.

It's a simple matter of Chemistry!

The Personal Care field, is still inadequately underpinned by a defined regulatory framework concerning natural raw materials and finished products, despite this is undeniably a growing trend. From one side, this gave rise to independent bodies that developed private natural/organic standards, that producers can adopt to get related certifications. On the other hand, end users are not adequately prepared and trained on this topic, and daily face a multitude (maybe too many?!) of labels and certifications claiming natural/ green/ organic/ sustainable products, not only in the cosmetic, but also in other market segment. This probably only increases consumers' confusion.

On natural and organic, it seems that the Personal Care market is far from the principle of the informed and conscious product choice, which is one of the main objectives of the European Cosmetic Regulation 1223/2009.

In this context, few topics could be beneficial in order to avoid confusion and misconceptions. The first, that may appear shocking for the average end user is so simple: *there are essentially no natural cosmetics!* Some ingredients can be obtained from plants, and in nature we can find some substances with effective cosmetic benefits; nevertheless, in both cases, they have to be physically or chemically processed/ modified to be used as cosmetic ingredients. Second, it appears definitely challenging to combine finished products' performance with 100% natural/natural derived ingredients in the formulation. Third, maybe the most important to be instilled in end users' mind: ingredients' safety does not lie in their source, but in their chemistry. Yes! *Chemistry*, this terrifying word... It is evident that the Personal Care field is increasingly oriented to the natural / organic approach, and obviously this is more than welcomed when it implies research and use of renewable resources and a reduced environmental impact. As involved stakeholders in this process, from one side we believe that the implementation of a unified international standard, giving to cosmetic producers and customers a unique regulatory context to be followed, would be beneficial. Additionally, what remains of paramount importance is to always keep the safety level on top of priorities, for both single ingredients and finished formulations.

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