

Fragrances for Natural and Certified Organic Personal Care Products*

The link between fragrance and health in personal care product development

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A recent article in *Woman's Wear Daily* reported that organic brands and products based on sustainable resources have become one of the fastest-growing segments in beauty care.¹ In fact, according to the Organic Trade Association, sales of US organic personal care products grew 28% to \$282 million in 2005. Personal care accounted for 38% of the total organic non-foods category. Total sales for the category, which include supplements, household products/cleaners, pet food, flowers and fibers, grew 32% to \$744 million in 2006 (see **T-1**).

Some major beauty manufacturers recently tested the waters in the prestige arena and in alternative channels. For example, Gucci Group-owned YSL Beauté recently unveiled an organic treatment line by designer Stella McCartney, and Groupe Clarins took a minority stake in the natural brand Kibio.

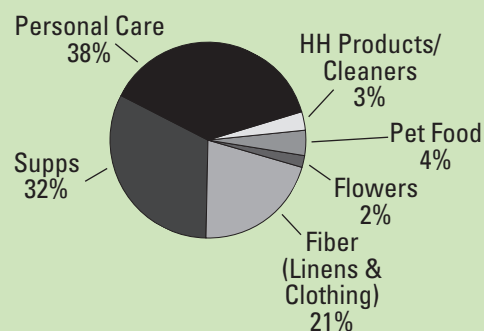
Organic bath, body and skin care marketer Erbaviva LLC has teamed up with Target Corp. to introduce Erbaorganics, a National Organic Program (NOP) certified organic skin care line for moms and babies. The line is billed as all-natural skin care and it features 12 products.²

Horst Rechelbacher, a self-described “ecological activist,” shook up the salon industry in the late 1970s with the founding of Aveda Corp.—a natural, eco-friendly beauty company. Now he’s preparing to break ground with another line, one that reflects his sharply evolved home-grown philosophy. By teaming up with salon company Regis Corp., Rechelbacher has created a head-to-toe organic personal care and cosmetics line called *Intelligent Nutrients by Horst*. The joint venture, Intelligent Nutrients LLC, plans to distribute the products exclusively to salons.³

Organic Trade Association's organic non-foods category share for 2005

T-1

Organic Categories	Sales (\$ million)	% Growth
Organic supplements	\$238	29%
Organic personal care	\$282	28%
Organic household products/cleaners	\$19	29%
Organic pet food	\$30	46%
Organic flowers	\$16	50%
Organic fiber (linens and clothing)	\$160	44%
Total organic consumer non-foods sales	\$744	32.5%



In addition, smaller, yet niche brands are emerging in unusual places. LAVANILLA Laboratories developed a fragrance line with the claim of being a healthy fragrance. The products are made with essential oils, natural botanicals and have “super antioxidant technology” that claims to help skin stay young and rejuvenated, unlike the alcohols in other perfumes. The line has three fragrances: *Pure Vanilla*, *Vanilla Blossom* and *Vanilla Grapefruit*.

*Modified from a speech originally presented at the HBA Mid-year Conference.

All of these companies have a common driver—producing green products to respond to consumer demand. The growth in natural and organic personal care products has presented many challenges to the ingredients suppliers. Not only must the products be functional, increasingly sophisticated and affordable, but they must also be “healthy” and free of parabens, phthalates and other questionable ingredients.

Today, even the fragrance or scents used to add value to the product are subject to the same scrutiny as the personal care base or other components contributing to

the finished product. Here I will examine how fragrance and health are now intimately linked in the product development process at most personal care companies. In addition, I will explore, from a formulation and marketing perspective, how certain natural and organic fragrance components are valued as much for their perceived healing and therapeutic properties as they are for their olfactive contribution to personal care products.

Regulatory Challenges

Fragrance manufacturers, as well as beauty care and cosmetic manufacturers, are under public scrutiny like never before. A report on phthalates found in eight fragrances appeared in *Consumer Reports*.⁴ All of the fragrances tested contained at least the following two phthalates: di-phthalate (DEHP), which is banned in cosmetics in Europe, and diethyl phthalate (DEP), which is not banned and was present in much larger amounts. The findings seem to counter a fragrance industry survey that reported DEHP use is down to zero.

Phthalates are a class of chemicals used as softeners or plasticizers in polyvinyl chloride (PVC, vinyl) products, including children's toys, decorating and building products and blood bags. They are also used as solvents and other additives in a wide range of consumer products, including cosmetics, personal care products, wood finishes and insecticides.

According to *Consumer Reports*:

“Companies that have eliminated phthalates are no doubt getting the message that people are paying more attention to ingredients. But public concern isn't the only factor driving the reformulations. Another reason is a European ban. Although the United States has outlawed just eight cosmetic ingredients, the European Union has banned more than 1,000. For companies that make cosmetics, complying with EU rules makes good business sense. It's more efficient to sell the same product worldwide. It's also good public relations. About 380 US companies have publicly pledged their allegiance to cosmetic safety by signing the Compact for Global Production of Safe Health & Beauty Products, under which they voluntarily pledged to reformulate globally to meet EU standards.”⁴

According to studies conducted by the Environmental Working Group (EWG) in 2004, of the 14,841 name-brand personal care products evaluated, more than a third contained at least one industrial chemical ingredient linked to cancer and 79% contained harmful impurities that include known or probable carcinogens, pesticides, reproductive toxins, plasticizers and degreasers.

However, with no government regulation of the words “organic” or “natural” in the personal care product market and no pre-market safety testing required, finding healthy, 100% toxin-free products is anything but easy.

“Because of the lack of government regulation, many companies continue to mislead and confuse consumers by labeling personal care products as ‘natural’ and ‘organic’ when they contain just one or two highly-processed botanical extracts and the rest is synthetic chemicals,” says Rosie Ward, director of health and wellness at Northwestern Health Sciences University in Bloomington, Minnesota. “Therefore, consumers need to educate themselves on the ingredients of each product to ensure it's entirely organic, because the government isn't going to do it for us.”

The Food and Drug Administration's (FDA) Office of Cosmetics and Colors says that a cosmetic manufacturer can use almost any raw material as an ingredient without approval. Under this policy, the FDA has only reviewed the safety of 11% of the 10,500 ingredients in personal care products today. The EWG has found that these ingredients account for one of every seven of the 75,000 industrial chemicals registered for commercial use.

The Natural Product Building Blocks

Increasingly, more and more products being introduced into the marketplace are formulated from natural and/or organic components. This demand is expected to continue well into the future. The “eco” movement encompasses so many things in today's society, including sustainable agriculture, alternative energy sources, biodegradability and, of course, health. Within the personal care sector, a number of products have been used successfully for years to combat dry skin, dandruff, and other conditions.

Skin care: Natural plant products have been known to heal and prevent dry skin, slow the aging process and treat skin conditions such as eczema and acne.

- **Dry skin:** Extracts from cocoa butter, mango, coconut oil and olive oil are useful.
- **Eczema:** This is a disease characterized by redness, swelling, itching and scaling. Turmeric, processed from the plant *Curcuma longa*, has an active ingredient called curcumin that can treat eczema and other similar skin conditions.
- **Acne:** Extracts from artemisia, (armoise, tarragon) holy basil, pea, pumpkin and red onion.
- **Aging:** Extracts from Asian ginseng, grape seeds and black and green tea.
- **Skin inflammations and skin protectants:** Extracts from red clover, chamomile, fenugreek, jojoba, aloe vera, oats and cucumber.

Hair care: Plant extracts are used as growth stimulants, for treatment of dandruff and as hair colorants and dyes.

- **Hair growth:** Extracts from ginkgo, aloe vera, henna, sage, rosemary and grape seeds.
- **Dandruff:** Extracts from sage, rosemary and thyme. Garlic and English walnut are also used but should be applied directly to the scalp.
- **Natural dyes:** Extracts from henna are used for reddish color, onion for coppery colors and curcumin from turmeric produces a range from yellow to deep orange.

Essential oils: These are extracted from flowers, herbs and fruit through methods that are often slow, laborious and expensive. Their modes of function include physiological (anti-inflammatory effects), psychological (aromatherapy) and cosmetic (preservative and antioxidant benefits). They include citrus oils, chamomile oil, lavender oil, tea tree oil and black cumin.

- *Fragrance:* Used as a fragrance in the perfume industry.
- *Hair care products:* Used to promote shine and to condition.
- *Skin products:* Used to promote hormonal balance, combat the build-up of toxins, and to moisturize the skin .

Some therapeutic properties of essential oils:

- *Antiseptic:* All essential oils are to a greater or lesser extent antiseptic. This is one of their most important and valuable properties. This broad description of antiseptics includes antiviral, antifungal, antibacterial and general antimicrobial activity which is found in such oils as: lemon, thyme, tea tree, garlic, eucalyptus, cinnamon, pine, lavender and sandalwood.
- *Anti-inflammatory:* Oils with this property help to ease inflammation. The symptoms of inflammation are typified by pain, redness, swelling and partial or total loss of function of the tissue involved. Examples of oils with this property are chamomile, rose, lavender, sandalwood, myrrh and benzoin.
- *Cytophylactic:* Restoration of tissue function and regeneration of cells is another outstanding property of essential oils. Pine, basil and rosemary are known to restore function to the adrenal glands; jasmine, cypress and ylang restore function of reproductive endocrine glands; and lavender and chamomile stimulate cell regeneration in the skin.
- *Sedative:* Essential oils may also have a pronounced effect on the nervous system by producing relaxation, pain relief and relieving muscle spasm. Oils with these properties include: lavender, neroli, rose, geranium and ylang-ylang.

Here are some common essential oils and their health claims:

- *Lavender:* Helps alleviate depression, inflammation, spasms, headaches, respiratory allergies, muscle aches, nausea and menstrual cramps, heals burns and cuts, destroys bacteria, soothes bug bites, and lowers blood pressure.
- *Peppermint:* Alleviates digestive problems, cleans wounds, decongests the chest, relieves headache, neuralgia and muscle pain, and is useful for motion sickness.
- *Eucalyptus:* Lowers fever, clears sinuses, has antibacterial and antiviral properties, relieves coughs and is useful for boils and pimples.
- *Tea tree:* Fights fungal, yeast and bacterial infections, useful for skin conditions such as acne, insect bites and burns, helps clear vaginitis, bladder infections and thrush.

- *Rosemary:* Relieves pain, indigestion, gas and liver problems, increases circulation, decongests the chest, lessens swelling, fights infection and helps alleviate depression.
- *Chamomile:* Helps relieve stress, insomnia and depression, reduces swelling, treats allergic symptoms and is useful in treating digestive problems.
- *Thyme:* Lessens laryngitis and coughs, fights bladder and skin infections and pain in the joints.
- *Tarragon:* Stimulates digestion, calms neural and digestive tracts, and relieves menstrual symptoms and stress.
- *Helichrysum:* Heals scars, reduces swelling after injuries, relieves sunburn, fights infections such as bronchitis and flu, treats pain from arthritis, muscle injuries, sprains, strains and tendonitis.

Carrier oils: Vegetable oils high in vitamins A, E and F are the best carriers of essential oils and are skin-softening and rich in nutrients. They are called fixed oils because the large molecules stay in the plant instead of being easily released, as are the essential oils. Whenever possible, choose vegetable oils that are cold-pressed, which means they have not been exposed to temperatures above 110°F.

Unlike essential oils, vegetable oil molecules are large and do not easily penetrate the skin, making them an ideal medium for cosmetic products. The saturation rate of carrier oils measures how thick they are. The more saturated the oil, the thicker it is, the longer it stays on the skin and the longer its shelf life.

On the other hand, unsaturated oils give the illusion that they are being absorbed into the skin when they are actually evaporating. The most suitable oil depends on the application. Most massage therapists prefer saturated oil for massage, but many cosmetics use less saturated oils that feel not as thick and sticky. Also, the lower the iodine value, the better the oil will keep (see **T-2**).

Some common carrier oils, their percent of saturated fats and iodine value

T-2

Oil	% of Saturated fats	Iodine value
Coconut	91	9
Cocoa butter	50	40
Olive	20	84
Peanut	20	92
Rice	17	104
Corn	17	124
Wheat germ	18	125
Walnut	16	138
Soy	15	130
Sesame	13	110
Almond	5-10	100
Apricot	5-10	100
Sunflower	6-8	130
Safflower	6	143
Castor	3	84

Other factors to consider are smell and color. The light smell and color of high almond, hazelnut and high oleic sunflower oil place them among the most preferred oils for cosmetics and as carrier oils for fragrances.

Building a Healthy Fragrance

Building a healthy fragrance—a fragrance with therapeutic value—is not that difficult. Based on some of the essential oils already mentioned it would be easy, for example, to create a relaxing blend with anti-inflammatory properties by combining some lavender and chamomile essential oils with some sunflower oil. The challenge is to create a healthy fragrance that smells great, has efficacy and tenacity, meets International Fragrance Association (IFRA) Standards, is free of parabens and other questionable ingredients, has verifiable holistic and therapeutic benefits and can be preserved “naturally.”

The fact that a fragrance may be deemed healthy, by virtue of its ingredients, doesn't mean that it is “safe” according to IFRA Standards. For example, the use of bergamot oil expressed, is restricted based on IFRA Standards, which says, “For applications on areas of skin exposed to sunshine, excluding bath preparations, soaps and other products which are washed off the skin, bergamot oil expressed should not be used such that the level in the consumer products exceeds 0.4%. This is equivalent to 2% in a fragrance compound used at 20% in the consumer product.”

Most of the complaints from cosmetic companies who want to create healthy, green or eco-oriented personal care products are that the scent in the products is unsophisticated, medicinal, not tenacious enough, the scent has a short shelf life, etc. This is due to the fact that most of the blends utilize essential oils and floral absolutes such as those mentioned in **T-3**.

The tenacity of these types of blends is often lacking due to the fact that there are not enough molecular binding agents that can carry the fragrance for any particular length of time in a skin cream or body wash, for example. In addition, the lack of “sophistication” in the fragrance is due to the limited availability of certain notes such as Galaxolide, hedione, Iso E Super and Cedramber, to name a few. Add to that the difficulty in finding a proven natural preservative system (other than denatured alcohol) and you have a very nice smelling product with a very short shelf life!

There are a few companies, such as Citrus and Allied Essences Ltd., that are creating sophisticated natural isolates to enable perfumers to create with highly concentrated and fractionated natural constituents. These include products such as natural γ -decalactone, natural maltol, natural methyl anthranilate and natural *cis*-3-hexenol.

The next frontier is organic certification of these isolates where feasible, in order to address the labeling needs of companies who wish to have credibility in the

Essential oils/floral absolutes

Helichrysum, turkish rose, jasmin absolute, chamomile

Jasmin, myrrh, sandalwood, ylang-ylang, turkish rose

English chamomile, benzoin coeur, myrrh

Lavender, sandalwood, Bulgarian rose

Palmarosa, ylang-ylang, orange flower water absolute, jasmin absolute

Tuberose absolute, turkish rose, *Cistus labdanum*

Mandarin, jasmin absolute, ylang extra, lavender

Basil, thyme, rosemary, lemon, ylang extra

Olfactory profile

Sweet and feminine

Rich, warm and joyful

Light and alluring

Warm, light and floral

Rich, sweet floral fragrance

Elegant and soft

Warm, slightly floral, but fresh

Rich herbal, citrus and light floral

form of the US Department of Agriculture (USDA) NOP Certification. In addition, expect 100% certified organic antimicrobial and antibacterial preservative systems that actually work. Finally, prices for 100% natural and organic fragrances will come down as more and more interest evolves and the supply chain matures.

The greatest challenge in building healthy fragrances is to do so within reasonable price parameters. Natural isolates and 100% pure essential oils are best sourced as certified organic to guarantee the oils have not been adulterated. Both can be expensive. In the end, the key to ensuring great creativity is to give the perfumer as large a palette as possible.

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