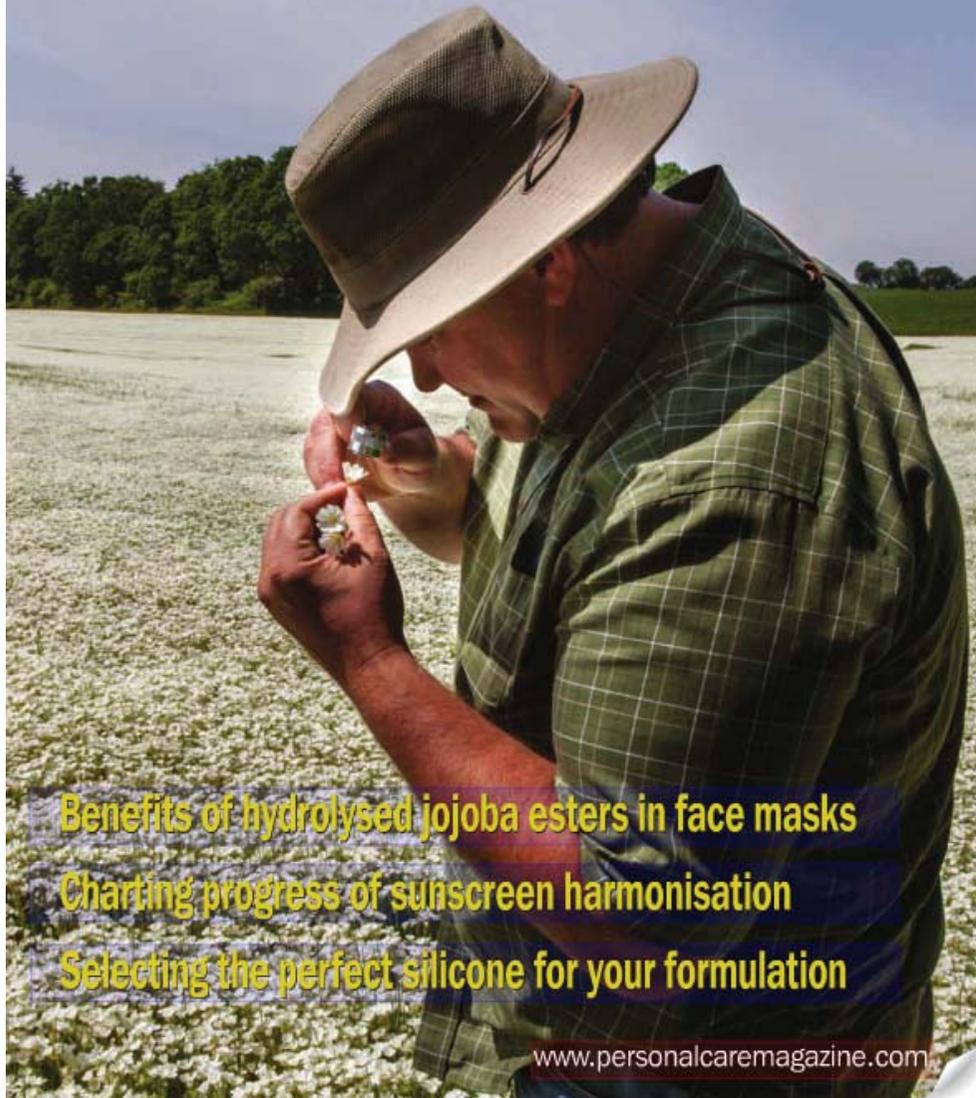


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ESSENTIAL OILS

Shining a new light on old favourites

Green care is a big trend in cosmetics. Wild rose cream, mint and verbena shower gel or lavender bath soak have established themselves as firm fixtures in many bathrooms. There is a general consensus that nature is good and beneficial, and people expect their skin care products to deliver what they promise. Creams, shampoos and deodorants have to prove their natural credentials with transparent declarations. Synthetic products are increasingly more likely to be rejected, a trend that applies not only to the actual cosmetic ingredients but also to the fragrance.

Today, the green spotlight is on fragrant ingredients that were in the past predominantly used in aromatherapy: essential oils. Not only are these oils the embodiment of natural purity, they also sensuously win over the organ that has the final say in the purchase decision: the nose. The most effective ingredients, the silkiest texture, the most eye-catching packaging and the most creative product name are all worthless if the consumer turns up his or her nose at the end result. If the fragrance is right it becomes an excellent marketing tool. By using scent, producers of natural cosmetics can immediately and lastingly communicate the positive characteristics of their products



and can set themselves apart from the competition. Until very recently, however, natural cosmetics manufacturers have only had access to a limited portfolio of scents. This tended to be dominated by classic fragrances such as rose, lavender or citrus, all of which have firmly established themselves as popular standards. As consumer expectations have evolved, perfumers' skills and expertise have developed to keep pace and meet the challenge of using wholly natural components to create unique, multi-faceted fragrance compositions.

The majority of consumers are familiar with essential oils mainly through their therapeutic effects: tea tree oil disinfects, eucalyptus loosens phlegm, rosemary stimulates the circulation. Essential oils are also reputed to have a mood-enhancing effect and can, depending on the plant, lift the spirits, calm or harmonise. The term 'oil' is slightly misleading. Essential oils are not oily; instead they consist of liquid, volatile hydrocarbon compounds which evaporate without leaving a residue. They are lighter than water and will not mix with water, but are soluble in alcohol and fats. They are most frequently obtained using steam distillation. Other extraction processes include cold pressing, extraction with a variety of solvents or extraction with fats.

A volatile variety with staying power

It is here that essential oils truly come into their own. More than 100 plant families and around 2000 sub-groups yield volatile components which even the ancient Egyptians and Romans made liberal use of. Essential oils can be extracted from practically any part of the plant: from the roots, the leaves, the bark, the wood, the fruit skins, the flowers or the seeds. The function of essential oils for the plant is not entirely understood. It is assumed that their smell mimics the pheromones of insects in order to attract them as pollinators. At night, the scent guides useful insects to the flower and at the same time repels unwanted pests.



A challenge for perfumers

Essential oils have always been a key ingredient in perfumery, as synthetic fragrance components were not developed until the end of the 19th century. Classic choices for perfume compositions still include essential oils from flowers such as rose, jasmine and lavender, from citrus fruit such as bergamot and orange, from woods like sandalwood, cedar and rosewood, from spices like anise and myrrh, from the roots of vetiver, the needles of conifer trees or the berries of the juniper bush. Asian

consumers are particularly fond of floral oils, such as osmanthus, jasmine and magnolia; Southern Europeans like fresh, coïgure-style scents based on bergamot, neroli and petitgrain; Scandinavians prefer spicy fragrances with conifer, juniper, pine and lavender.

Abandoning the use of synthetic components entirely presents a significant challenge for perfumers. Natural essential oils are often very expensive, which is why only the smallest amounts can be used in formulations. One kilogram of natural rose oil costs nearly €6,000, while a kilogram of good quality synthetic rose oil can be purchased for a fraction of this amount. Other popular scents, such as jasmine and tuberose, also command very high prices. Often, synthetic substances make it easier to achieve a desired effect in a fragrance. To emphasise a sweet note all it takes in synthetic perfumery is a hint of vanilla, heliotropin or coumarin. Extracts of natural vanilla or tonka bean are incomparably more expensive. Accordingly, perfumers are limited to a smaller number of ingredients when composing a fragrance; often this is even explicitly demanded by manufacturers of skin care products as then all the essential oils can be listed on the product label. For instance, a lavender scent is created with ten instead of 25 ingredients. Ideally, this limitation will fire the perfumer's creative spirit. At Dülberg Konzentra, Europe's largest supplier of essential oils, when formulating the aquatic scents that are enjoying a surge in popularity in natural cosmetics, the perfumers use an absolute of algae as this yields the desired salty, seaweed effect. A clean, watery-green accord is added with an extract of watermelon skin.

Aromatherapy formulations are, of course, a real home game for essential oils. These are especially popular in body care, where combinations of lavender, ylang, patchouli, cardamom, cinnamon, lime, ginger, orange or vanilla are perennial favourites. Essential oils are also ideally suited to the composition of fresh, uncomplicated base notes with citrus. Alexandre Illian, who creates perfumes with natural essential oils for the Dülberg Konzentra in-house brand Natura™, sees a strong trend towards transparent, green-floral notes such as lily, lime blossom, honeysuckle or lotus. Illian knows that people want clearly identifiable, recognisable scents, like mandarin or rose. These scents can be easily reproduced with simple accords consisting of five or six essential oils. But more complex perfumes that are based on popular fine perfumery or are inspired by classic accords such as chypre, ambergris or fougère can also in many cases be reproduced with essential oils.



Naturally variable

A different challenge – for purchasers and perfumers in equal measure – is the fluctuating quality of the raw materials. Unlike synthetic ingredients, which for the most part consist only of one substance, essential oils are variable in their composition. They consist of a multitude of organic compounds; a single essential oil can contain anything up to 100 individual components. Terpenes, which include ethers, aldehydes, acids, esters and hydrocarbons, account for the major proportion of any essential oil. Each of these components contributes to the characteristic smell. The quantity and quality of these compounds in the essential oil depends on many different factors:

the conditions in which the plant or tree grew until it was harvested, including the climate, altitude, amount of sunlight and fertiliser, as the composition can vary depending on the season, and sometimes even the time of day. This is what makes cedarwood oil from the state of Virginia smell different from an oil obtained from Texan trees. The perfume industry has identified specific countries of origin for each essential oil, countries where the best combination of factors yields the very best quality. For example, Dülberg Konzentra sources its vetiver oil from Haiti, orange flower absolute from Morocco, sage oil from Italy and patchouli oil from Indonesia.

Pure quality

Dülberg Konzentra's perfumers perform olfactory tests on all incoming raw materials. Then it is the turn of a highly sensitive technological expert: enantioselective gas chromatography

combined with mass spectroscopy. This joint process can precisely define the identity of the oil, the quality, purity and stability. Based on so-called peaks, which are recorded by the computer at different times, the process also provides a precise image of the proportions of the components present in the essential oil – even down to the minutest traces.

The essential oil is then purified in an advanced distillation unit, i.e. it is reconstituted in the desired quality; unwanted components are skimmed off during vaporisation. For example, removing terpenes from an orange oil or a mint oil makes the oil smell more intense. These processes are used to produce a variety of grades, from naturally pure through to essential oils for the pharmaceutical industry that comply with the standards of the European Pharmacopoeia and GMP (Good Manufacturing Practice). However, the process is complex and time-consuming, as the highly sensitive compounds in essential oils can easily be destroyed if exposed to excessive heat.

Magical scents with a rosy future

But do these super-sensitive and ultra-complex technical apparatuses not detract from the sheer magic of essential oils? For Alexandre Illian, perfumer at Dülberg Konzentra, professional analytics and the magic of perfume are not mutually exclusive: "Whether they are obtained from flowers, leaves, spices, resins or woods – all essential oils consist of thousands of 'living' substances which can influence our body, our skin and our mood. Just a single drop can make us feel happy, sensual, invigorated or relaxed. When I smell lavender oil I instantly feel comforted,



because the smell reminds me of the time I spent with my family in the south of France." Depending on the dosage in the formulation these effects can be either very subtle or very strong. A lavender bouquet smells even stronger and more aromatic if rosemary or sage oils are added. Vanilla makes a lavender scent sweeter and softer, taking it in a more oriental direction. A woody scent becomes crisp and radiant if essential citrus oils are added, because they make the body glow and add complexity to the scent.

There are magical times ahead for essential oils in body care products. Their use is rising rapidly, especially in creams, body lotions and body butters. Also included in the resurgence of essential oils is a trend which originated in the Middle East and has now taken over almost all of Europe: oud. The world's most precious essential oil, obtained from the wood of the aquilaria tree, has for centuries been valued in the Arab world as a fragrance ingredient. Its smoky, animalistic smell is also becoming increasingly popular in Western bathrooms. Other oriental scents, such as sandalwood, saffron and rose, are also fast becoming popular in both women's and men's fragrances; as 'Modern Orientals' they are frequently composed with floral notes. Another fragrance that is experiencing a renaissance in a new guise is the rose. This classic essential oil is now being used in a lighter, more transparent and fresher interpretation. As an alternative to the very expensive rose oil, perfumers are using geranium oil, palm rose oil and mimosa oil to create appealing alternatives. Those who prefer things a little more exotic will love the new trend towards tropical flower oils, such as hibiscus, frangipani and champaca. Essential oils play a key role in the formulations for certified organic cosmetic products, and Dülberg Konzentra meets the ever-rising demand in this segment with Ecocert-certified essential oils.



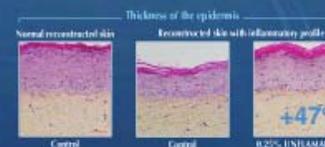
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