

Natural Perfumes

The natural ingredients of perfumes are of plant and animal origins. The first centre of the natural flower industry in the 18th century was the town of Grasse in Provence. Production of the essential oils is very labour-intensive. It requires growing, harvesting and processing the plant material. Therefore it takes place in the developing countries. The Norfolk Lavender industry survived in the UK. Surprisingly, the English lavender yields an essential oil with a different bouquet and composition from the lavender of Provence. In Grasse the major product use is jasmine. At first a waxy solid which is the jasmine concrete is obtained. It is extracted with petroleum ether. Then treatment with warm alcohol dissolves the jasmine oil leaving the wax behind. Animal fat is the traditional extracting solvent for jasmine. The spent blossoms are replaced with fresh blossoms every 24 hours due to the fact that the perfume molecules are gradually generated from a more complex chemical substance produced by the plant. After the flowers are picked, enzymes continue to break down this precursor, generating more fragrant oil.

Roses are even more valuable plants than jasmine. Rose petals first must be boiled up in water. The vapour is condensed to give a layer of rose oil floating on rose water. Some water-soluble chemicals may also be extracted from the rose water.

The two common methods used here are solvent extraction and steam distillation. They are applied to obtain a whole range of chemical mixtures not only from flower petals but also from seeds, e.g. bitter almonds, the leaves-lavender, the bark-cinnamon, the fruits-citrus, the stems or the roots-angelica. The stock-in-trade of the industry are clover, mimosa, rosemary, patchouli, sandalwood, vetiver, lily of the valley, lilac, honeysuckle, violet and others.

The traditional animal products used in perfumery are obtained from the scent glands of the Ethiopian cat, the Himalayan musk deer and musk ox and the beaver. These materials supply characteristic odours to a perfume. They mainly act as fixatives, slowing down the evaporation of the perfume for longer. These natural products are very expensive since, for example, the glands of an adult musk deer yield at most 50g of musk. The Fragrant substances of these secretions are based on unusually large rings of carbon atoms.

There are still some desirable fragrances that cannot be captured as components of an essential oil. This has led to continuous research and development activity in laboratory but not in the field. Thus valuable fragrances can be obtained synthetically by modifying chemicals from readily obtainable plant extracts. Nature-identical, analogue and unrelated fragrances may be synthesized in the laboratory. Synthetic perfume components are characterized by a more consistent quality, lower price and guaranteed supply. Single isomers of a mirror-image pair can be obtained by reacting both with another chiral compound separating the products which will have different physical properties.

1. Find the words in the text that mean:
 - a. a liquid in which solids will dissolve
 - b. something which happened or existed before another thing
 - c. the beginning or cause of something
 - d. the activity of collecting crops
 - e. make liquid thicker by removing some of the water
 - f. removed chemical substances
 - g. changing easily into a gas
 - h. sweet or pleasant smell
 - i. special process in order to give particular quality
 - j. any one of a group of chemical substances which all have the same number and type of atoms but the arrangement of atoms is different

2. Answer the questions:
 - a. What is the source of perfume?
 - b. Why is production of the essential oils time consuming?
 - c. What chemical procedures are applied?
 - d. Which parts of plants are used to obtain chemical mixtures?
 - e. How can some fragrances be prepared?
 - f. What are the advantages of synthetic perfume components?