

Methods for Extracting Essential Oils

There are several different ways to extract essential oils, and all require elaborate equipment. As you will see from the following descriptions, most extraction techniques are based on the fact that the majority of essential oils mix with oils, fats, alcohol, and certain solvents, but not with water. Some methods are more suitable for certain plants than others, depending on the plant's chemical make-up.

Distillation

Most pure essential oils are extracted from plants through steam distillation. Freshly picked plants are suspended over boiling water, and the steam pulls the oils out of the plant. The steam rises, is captured in a vessel, and is pushed along tubing. Then the steam is rapidly cooled, causing it to condense back into water. Since water and essential oils do not mix, the two separate, and the essential oil is collected.

A byproduct of this distillation is the remaining water. Some plants contain aromatic compounds that are so water soluble, they remain in the water that is left over after distillation. Such waters are very fragrant and are prized by aromatherapists, who refer to them as hydrosols. In aromatherapy, hydrosols are used mostly in cosmetics to moisturize skin.

Expression

The most direct method of producing essential oils is pressing them from the plant's flesh, seeds, and skins -- a process similar to that used to obtain olive oil. This technique is used mostly with citrus peels, such as orange, lemon, lime, or grapefruit, because the oil in their peels is easily pressed out.

Enfleurage

This very old method is rarely used today except in France. It is a long and complicated process that has become very expensive. Blossoms are set on sheets of warm fat that absorb the oil from the flowers. Originally animal fat or lard was used, but now vegetable fats are more common. Once the essential oil has been incorporated into the fat, the "exhausted" flowers are removed and replaced with fresh ones. The process is repeated several times until the fat is infused with fragrance. Then the fat is separated out with solvents, leaving just the essential oil.

Solvents

Aromatherapists tend to shy away from oils obtained through chemical solvents, worrying that slight traces of the solvent may remain even though they are supposed to be completely removed. First, the plant is dissolved in a solvent such as benzene, hexane, or chlorure of methylene. The solvent, which has a low boiling point, is then evaporated off, sometimes with the help of a machine that uses vacuum or centrifugal force to help pull it away from the essential oil.

The resulting oils are called "absolutes." A similar method uses paraffin waxes as the solvent, but does not evaporate them off. Instead, the remaining paraffins cause the final product to be solid, and thus it is called "concrete."

Even though the evaporated solvent is recaptured and cooled back into liquid so that it can be reused, this process is still expensive. As a result, it is reserved for costly oils that cannot be distilled, such as jasmine and vanilla, or for rose essential oil, which is slightly less expensive when obtained through this process rather than through distillation.

Carbon Dioxide

New methods of obtaining essential oils are currently being introduced. One of the most interesting processes, although extremely expensive, extracts the oil with carbon dioxide. The delightful result is an essential oil scent that is very close to that of the plant itself.

Depending on the way the essential oil is produced the quality and concentration can be greatly affected. We'll learn more about essential oil quality on the next page.