

1 lb. (450 g) of oil. Furthermore, rose hips are used in culinary, nutritional, and cosmetics products.



Sandalwood

Its aromatic profile is sweet, warm, and smooth, preferred as a base note material in predominantly exotic amber compositions. One of the most coveted forms of sandalwood essential oil originates from the *Santalum album* tree from Mysore, India. The tree needs to grow for at least 30 years before the wood reaches its ideal aromatic profile, and harvesting is government-regulated due to its status as an endangered species.

Tonka Bean

Also known as *Dipteryx odorata* seeds, the tonka bean resembles the smell of almonds, hay, and and is often used as a substitute for vanilla due to its similar olfactory characteristics. Its absolute is created by soaking the beans in rum for up to 24 hours, then letting the beans dry until crystals of coumarin appear on its surface.

Tuberose

Often described as carnal, *Polianthes tuberosa* is one of the most sensual and opulent white florals, with a creamy and full-bodied feel. It is native to Mexico and requires a tropical to subtropical climate. A whiff of tuberose encompasses everything from camphor to meaty or metallic facets.



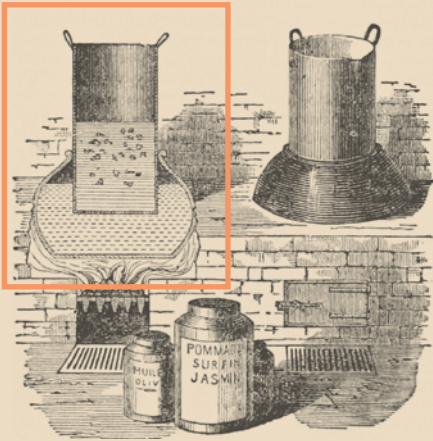
Vanilla

While there are approximately 100 vanilla plant varieties, the two used for commercial purposes are *Vanilla tahitensis* and *Vanilla planifolia*. Vanilla grows in tropical climates ranging from Madagascar (*Vanilla bourbon*) to Mexico (*Vanilla planifolia*). Tahitian vanilla is one of the rarer breeds, having a fruitier nuance due to it containing more heliotropine and less vanillin than the standard variant. After being picked, the pods are left to dry for about six months, during which they produce white crystals known as vanillin.

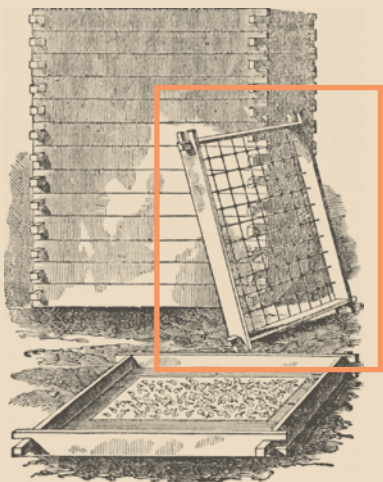
EXTRACTION METHODS

Enfleurage

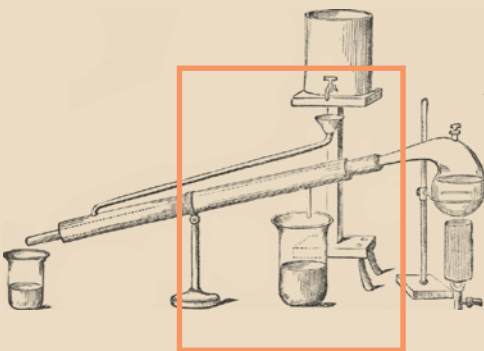
This method harnesses the ability of solid, refined fat to absorb the aromatic qualities of raw materials, primarily flowers such as tuberose or jasmine for the cold method and the likes of *centifolia* rose and orange blossom for the hot variation.



In hot enfleurage, the petals are cooked in emulsified lard inside large copper vats and later drained, resulting in a pomade which is then washed with alcohol to create an absolute.



For cold enfleurage, a layer of the fat is spread on glass plates that are held in a chassis (a type of wooden frame), with the petals placed on the material between one and three days, depending on the species. After the fat has absorbed all of their aromatic qualities, the petals are replaced with a new batch.



Steam Distillation

Steam distillation begins with the raw material being prepared for extraction, if necessary, such as wood being finely grated or seeds crushed. Then they're placed on a grille inside of a still which is filled with water and heated up. The rising steam captures the scent of the material, which passes through a condenser. It's in the condenser that the oil (extracted from the raw material) and the water change from their steam form into two separate entities, also known as the essential oil and floral water, respectively.

Headspace Technology

While some methods of extraction date back centuries, headspace technology was not developed until the 1980s (pioneered by the

likes of IFF and Roman Kaiser at Givaudan) as a means to capture more elusive odors. A glass dome is placed around the object, encasing the scent molecules surrounding it. These components run through a silicone wire which is then analyzed via gas chromatography–mass spectrometry, a technique which combines a gas chromatograph with a mass spectrometer to read and identify hundreds of molecules. The machine then produces a reading of all the components that give the object its smell, which can then later be used to recreate its unique aromatic profile.

Expression

Expression is reserved for the extraction of hesperidic oils, which originate from the rind of citrus fruit. The peels are cold-expressed via mechanical crushers, yielding the essential oils contained within.

Solvent Extraction

Benzene and hexane enabled the earliest forms of solvent extraction. In this process, raw material is placed on a tray in a vessel and a liquid solvent is poured over it. The solvent strains through, extracting the oils from the raw material. The resulting oil is distilled until it forms into a waxy paste. This material is known as a resinoid (for dry materials) and a concrete (for flowers). Concretes undergo further alcohol washings to obtain all of the scented oils, which then solidify into a wax that is carefully heated until the alcohol evaporates. The end result of this concrete processing is known as an absolute.

Supercritical CO₂ Extraction

The most recent method available, called supercritical CO₂ extraction involves altering carbon dioxide gas to a fluid form which is then poured through the raw material in question, gathering all of its fragrant qualities in the process, before being turned back into a gas via temperature and pressure regulation. Given the fact that it's not as hot as steam distillation or as erosive as solvent extraction, supercritical CO₂ extraction can be utilized for delicate raw materials whose fragrant qualities would be compromised through these more traditional methods.



Tinctures

A simple, but lengthier process, creating a tincture involves placing the raw material in base alcohol and allowing it to macerate until the liquid has fused with its scented properties. This method is preferred for drier materials such as vanilla. •