

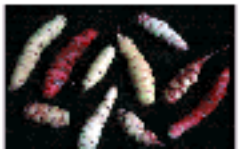


# Heaven's Delight - Vanilla

**By Luís M. Mendoza de Carvalho**
**(lmmcarvalho@hotmail.com)**

Commercial vanilla is the fruit (capsule) obtained from several different species of Orchidaceae, namely, *Vanilla pompona* Schiede (West Indian vanilla), *Vanilla tahitiensis* J. M. Moore (Tahiti vanilla) and *Vanilla planifolia* Jackson (Mexican vanilla). The most important is *Vanilla planifolia* Jackson, from which almost all vanilla fruits come from (Ferrão, 1993).

The genus *Vanilla* has about 100 species, and the Orchidaceae family is one of the largest in the Plant Kingdom, with more or less 20,000 species. Etymologically, the word *vanilla* came from the Spanish *vainilla*, which means a small pod, due to the great similarity between this fruit and a true pod (Ferrão, 1992; Mabberley, 1993).

Floriculture is the field that we immediately recall when we think of orchid plants. However, the genus *Vanilla* is the only one of the family that is of direct economic interest.

Some rural societies in Turkey and Greece still use *salep*, a staple flour made from the tubers of certain orchids, especially those included in the genus Orchis. Although the use of orchids for this purpose is rather localised, it is bringing some species of this genus to the edge of extinction (Baumann, 1996).

The *vanilla* plant is a vine, native from the tropical forests of Central America and some areas of South America. In its natural habitat, it may reach a length of 25 meters, climbing with the help of adventitious roots. The stems are thick and fleshy green; the leaves are alternate, long elliptical, sessile and bright green. The flowers, in clusters, appear in the leaf axils. They live only 8 hours and die if fertilization fails to occur. The plant blooms three years after the cuttings are planted and the yellow greenish fruits many have up to 90,000 seeds, taking five to seven months to mature. The fruit is scentless when harvested, it has a length between 10 to 25 cm and a weight of 5 to 30g (Ferrão, 1993).

*Vanilla* was brought to Europe by the Spanish conquerors of the New World. They found it in Mexico, when Montezuma, the last Aztec Emperor, offered them a drink made of chocolate, vanilla, red pepper

and honey. Local aristocracy used it to flavor chocolate, a custom still practised today (Brosse et al. 1989).

The Dutch introduced *vanilla* in Java (Indonesia), a former European colony in East Indies, at the beginning of the nineteenth century and the French did the same in the Reunion Island, Mauritius and Madagascar, all located in the Southwest Indian Ocean. All plants grown in these areas were fruitless, but no one knew exactly why. Later, people realised that this was due to the absence of pollination, because there were no insects or hummingbirds to do it rightfully. The only region where the plants could give fruits was in their native habitat (Boisvert et Hubert, 1998; Brosse et al., 1989).

In 1841 a black slave named Edmond Albius, from Reunion Island, invented an easy method to pollinate and cultivation became widespread (Ferrão, 1993).

In the fields, harvesting is always scheduled according to the stage of maturity of the fruits (Ferrão, 1993).

Commercial vanilla is obtained after special processing of the fruits. First they are put in hot water and then dried to allow fermentation to occur. In Madagascar, the world's largest producer of vanilla, the fruits are sundried and wrapped in blankets at night to remain warm. This is a long process that takes months and increases the cost of the product. This spice is one of the most expensive, second only to saffron (Crocus sativus L.) (Ferrão, 1992).

The commercial fruit has a black/brown colour and a soft and flexible touch, due to several oxidations that take place inside it. If they are harvested before the proper time they are poor in aromatic compounds and if the harvesting is made too late, they will initiate the dehiscence process, with a great loss in market prices. Usually, 6 kg of green fruits produce 1 kg of commercial vanilla. The fruit must not have a water content above 25% and should always be kept in a very tight box to avoid the loss of aroma (Boisvert et Hubert, 1998; Ferrão, 1993).

After all these long lasting processes, small crystals of vanillin, the most valuable compound of the fruit, naturally cover the fruit. The final contents of vanillin are up to 3.5%. Vanillin was isolated in 1858 and its artificial synthesis was made in 1874, from eugenol extracted from clove. In the fruits there are many more aromatic compounds, besides vanillin, that make the natural flavour unique. Nowadays, the synthetic vanillin is obtained from lignin, a by-product from paper pulp industries (Bruneton, 1995).

Sugar with vanilla flavour is made by putting a vanilla fruit inside a tightly closed container with sugar. The product so obtained can last for years. Chocolates, liquors, cakes and the famous ice cream are some of the delicacies made with this fragrant and delicious spice (Grieve, 1981; Norman, 1990).

Formerly, vanilla was used in medicine as a mild sedative and to aid digestion, but nowadays it's no longer used for these purposes. Vanillism is a disease that appears in sensitive workers who deal with huge amounts of vanilla daily. It is characterised by headaches, lassitude and allergic skin reactions of

the face, neck and hands (Bown, 1995; Touissaint-Samat, 1994).

The perfume industries also use vanilla as a basic or middle note because of its rich, sweet and balsamic scent (Williams, 1997).

In the nineteenth century, Mexico was the largest vanilla producer, but since the First World War some islands in the Indian Ocean have become the world's largest centre of production. Today the largest exporters are Madagascar, Comores Islands, Reunion Island, China and Indonesia. The big consumers are the western countries: the USA, Canada, EEC countries, Japan and Australia (Ferrão, 1993).

Although the advances in chemical synthesis are great, natural vanilla will always be one of those delightful spices that take our mind and senses to exotic places and wild dreams.

**References**


Baumann, H. (1996). *The Greek Plant World in Myth, Art and Literature*. Timber Press, Portland.

Brosse, J.; Nantet, B.; Touchard, M. C.; Beauthéac, N.; Touissaint-Samat, M. (1989). *A Rota das Especiarias*. Edições Inapa, Lisboa.

Bruneton, J. (1995). *Pharmacognosie. Technique et Documentation* . Lavoisier, Paris.

Boisvert, C; Hubert, A. (1998). *L´ABCdaire des Épices*. Flammarion, Paris.

Bown, D. (1995). *The Royal Horticultural Society Encyclopedia of Herbs & Their Uses*. Dorling Kindersley, London.

Ferrão, J. E. M. (1992). *A Aventura das Plantas e os Descobrimentos Portugueses*. Comissão Nacional para a Comemoração dos Descobrimentos Portugueses, Lisboa, Portugal.

Ferrão, J. E. M. (1993). *Especiarias*. Instituto de Investigação Científica Tropical, Lisboa, Portugal.

Grieve, M. (1981). *A Modern Hebal*. Dover Publications, New York.

Mabberley, D. J. (1993). *The Plant-Book, a Portable Dictionary of the Higher Plants*. Cambridge University Press, Cambridge.

Norman, J. (1990). *The Complete Book of Spices*. Dorling Kindersley, London.

Touissaint-Samat, M. (1994). *History of Food*. Blackwell, Oxford.

Williams, D. G. (1997). *The Chemistry of Essential Oils*. Micelle Press, Weymouth, England.

**EBL HOME PAGE**

---

*Southern Illinois University Carbondale / Ethnobotanical Leaflets /*
URL: http://www.siu.edu/~ebl/
Last updated: 18-April-99 / du