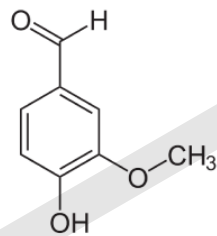


Plant of the Month

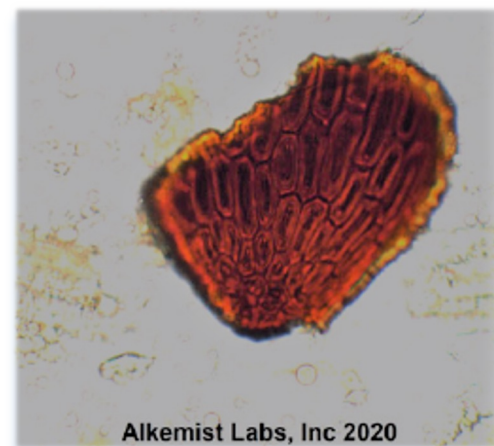
By Phung Hoang, Alkemist Labs



Vanillin

Chemistry

Vanillin, a natural organic compound, is primarily responsible for the unique and popular smell and flavor of vanilla.



Alkemist Labs, Inc 2020

Microscopy

Above is a vanilla seed coat fragment observed under a compound microscope. This fragment is one of the characteristics of vanilla and is used as a means to identify vanilla using microscopy.

Pharmacology

V. planifolia has high potential for pharmacological applications since there no toxic affects to the liver and blood cells even in high-concentration. The vanillin in vanilla also has been through extensive research for multiple medical applications such as cancer, neuroprotection, antifungal, antibacterial, and therapeutic treatments.



Vanilla planifolia

Vanilla



Botany

V. planifolia is a type of spice from orchids and a tropical climbing vine that can reach a length of over 20 meters high. The flowers are greenish yellow that produces a faint vanilla scent. The pleasant vanilla fragrance comes from the developed pods, which are the vanilla "beans", and the numerous black seeds inside the fruit.

History/Traditional Use

V. planifolia is a species native to Southern Mexico and Central America. It was kept secret by the Aztecs and the Mayas until the invasion of the Spanish. It was used primarily for flavoring foods and beverages, such as chocolate. Vanilla was then introduced to Europe by the Spanish in the 16th century. The French introduced vanilla for cultivation to Madagascar in the 19th century.

Cultivation/Preparation

V. planifolia is cultivated in a tropical environment. Madagascar is the largest producer of natural vanilla, estimating 75% of the world's production, followed by Indonesia, China, and Mexico. The pods are harvested 6 to 8 months after fertilization, and then dried and cured to produce the vanilla flavor and scent. The pods are commercially used whole or split to extract the seeds, and infused in a variety of commercial products.



References

1. Arya, S.S., Rookes, J.E., Cahill, D.M. *et al.* (2021). Vanillin: a review on the therapeutic prospects of a popular flavouring molecule. *ADV TRADIT MED (ADTM)* **21**, 1–17. <https://doi.org/10.1007/s13596-020-00531-w>.
2. Conservatoire et Jardin botaniques & South African National Biodiversity Institute. 2012. <http://www.ville-ge.ch/musinfo/bd/cjb/africa/details.php?langue=an&id=44029>.
3. Gallage NJ, Møller BL (2018) Vanilla: the most popular flavour. In: *Biotechnology of natural products*. Springer, pp 3–24.
4. Teuscher, E., 2006. *Medicinal spices*. Stuttgart: medpharm GmbH Scientific Publishers, pp.411-415.
5. *Vanilla planifolia* Andrews: *Plants of the World Online: Kew Science*. Plants of the World Online. (n.d.). <https://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:262578-2#source-KSP>.