THE word *Acorus* is derived from the Greek word ‘acoron’, which in turn is derived from ‘coreon’ meaning pupil and refers to the alleged ophthalmic virtues of the plant. Calamus originated from a Greek word ‘kalamos’, meaning ‘reed’. In Sanskrit it is commonly called *kalama*, meaning ‘reed’ and ‘pen’ as well as a sort of rice. It is a small genus of herbs, comprising two species viz. *Acorus calamus* and *Acorus gramineus*, found in the North temperate regions and South-East Asia.

The calamus has long been a symbol of male love. The name is associated with a Greek myth: Kalamos, a son of the river-god Maeander, who loved Karpos, the son of Zephyrus and Chloris. When Karpos drowned, Kalamos was transformed into a reed, whose rustling in the wind was interpreted as a sign of lamentation. It is commonly known as *Sweet Flag* (English) and *Bach* (Hindi). The name *Sweet Flag* refers to its sweet scent (it has been used as a strewing herb) and the wavy edges of the leaves which are supposed to resemble a fluttering flag.

Sweet flag earlier belonged to the family Araceae but later shifted to Acoraceae. It is an attractive, perennial, herbaceous, semi-aquatic and marshy plant species. It mainly inhabits wet areas like the edges of streams and around ponds and lakes, and ditches. It is found growing wild in Manipur, Uttarakhand, Jammu & Kashmir and Himachal Pradesh. Now its cultivation practices are very common in different parts of India.

The leaves of *A. calamus* look grass-like or sword shaped. They are simple, narrow, thick, glossy, bright green in colour. The rhizome is the main part of the plant, horizontal, jointed, vertically compressed, spongy, 1.25-2.5 cm in thickness. It is pale to dark brown, occasionally orange brown in color. It rarely sets flowers and seeds. Flowers are small white or yellow green in colour, fragrant and arranged in an elongate spadix.

**Therapeutic Uses**

In Ayurvedic pharmacopoeia the dried rhizome of the plant is used in weakness of memory, epilepsy, constipation, cough and asthma. It is commonly prescribed for improving voice and intellectual capacity. In *Sushruta Samhita* the juice...
of this herb has been recommended for intellectual vigour and longevity. According to Tibbi or Unani literature, the rhizome can be used as a brain tonic to improve memory.

Chopra et al. (1958) and Vohora et al. (1990) described that the rhizome part can be used in loss of memory. This plant has several other important medicinal properties too; it can be used as a stimulant, tonic, aphrodisiac, laxative, emetic, expectorant, emmenagogue, diuretic, in the treatment of insomnia, melancholia, neurosis, remittent fevers, epilepsy, delirium, hysteria, dyspepsia, as well as an antitumor agent and antidepressant compound.

Commercial Uses
The rhizome of the plant is the genuine source of the drug ‘vacha’ and ‘calamus’. The other commercial preparations obtained from the plant are Bacha-Churna, Sarasvata-churna, Ashwagandha-rishta, Yogaraja-guggulu, Sanjivani-vati, Chandraprabhavati, Unmadgajakesarasa, Mahashankhavati. It is used as a component for the preparation of Mentat syrup, which is used to improve mental functions and in the formulation of an Ayurvedic cough syrup.

Calamus Oil
Plant parts of *A. calamus* contain an aromatic essential oil, commonly known as “Calamus Oil”. It is used medicinally, in foodstuffs and harvested commercially for industrial purposes. It is a brownish, yellow-coloured essential oil containing several chemical constituents like asarone, methyleugenol, cis-methyleugenol, geranyl acetate, β-farnesene, shoyubunone, epi-shoyubonone and iso-shoyubonone. Of all the constituents, ‘Asarone’ is the major (up to 96%) bioactive constituent of the essential oil. A lot of research is going on calamus oil and its bioactive constituent ‘Asarone’.

**Asarone—Bioactive Constituent**
Asarone is a mild sedative, mild hypotensive and hypothermic substance. Chemically it is phenolic ether and commonly found in three isomeric forms viz. alpha (α), beta (β) and gamma (γ). Among these three forms, ‘β-Asarone’ [(Z)-1, 2, 4 trimethoxy-5-prop-1-enylbenzene] is found carcinogenic in nature and ‘α-asarone’ [(E)-1, 2, 4 trimethoxy-5-prop-1-enylbenzene] is a memory enhancer due to its antioxidant, antihyperlipidemic activities. Concentration of α and β-asarone in calamus oil generally depends on the parts from which the oil has been extracted and on the ploidy level of the plant. Due to this, the Council of European Committee of Experts on Flavoring Substances (CEFS) has encouraged the use of calamus oil that contains lower concentrations of β-asarone and higher concentrations of α-asarone. Generally diploid and hexaploid varieties, which contain fewer concentrations of β-Asarone (5-7%) and higher concentrations of α-asarone (~96%), are used in medicines and foodstuffs.

**Antioxidant Activity of Alpha-Asarone**
Oxidation of molecules is the major cause for the development of free radicals and other reactive species. In today’s highly polluted and toxic environment, medicinal plants could make a major contribution. They are, therefore, a major attraction for researchers and scientists due to their antioxidant properties. α-Asarone, an important constituent of the calamus oil, obtained from the different parts of *A. calamus*, has been shown as having potent antioxidant properties and found effective on neurotoxic oxidative free radicals.

α-Asarone is found effective in protecting the neurons by overproduction of nitric oxide (NO) in the hippocampus and temporal cortex part of the brain. This also decreases the production of oxidative free radicals during stress conditions such as loud noise, and exposure to neurotoxic chemicals like acrylamide as well as improves memory, which generally decreases due to stress conditions. α-Asarone has been found to be a potent antioxidant source for the brain to protect it from the neurotoxicity of free radicals and from several neurodegenerative diseases. It also increases the level of glutathione and glutathione-S transferase enzyme—antioxidants released during stress conditions. Due to this, α-Asarone is used as an antioxidant and memory enhancer compound in several brain tonics.

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