

MORPHOLOGY, BIOECOLOGY, PHARMACOLOGICAL PROPERTIES OF THE MEDICINAL PLANT ACORUS CALAMUS AND ITS USE IN FOLK MEDICINE

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Abstract: The flora of Uzbekistan is very rich and diverse. Deserts and steppes, mountains and hills, lowlands and river deltas are located side by side to create a wonderful landscape. The rich flora of the country includes more than six thousand different plants, including medicinal plants. Such herbs are environmentally friendly and are used as raw materials for the production of food, aromatic and pharmaceutical products. This article provides information on the morphology, bioecology, and medicinal properties of the medicinal plant *Acorus calamus*, as well as its use in folk medicine.

Keywords: *Acorus calamus*, *Acorus gramineus*, *Acoraceae*, biological properties, phytochemicals, traditional medicine, active constituents, pharmacology.

Introduction

Mother earth has bestowed to the mankind and various plants with healing ability for curing the ailments of human being. This unique feature has been identified since pre historic times. The WHO has also estimated that 80% of the world population meets their primary health care needs through traditional medicine only. Medicinal plants are those plants possessing secondary metabolites and are potential sources of curative drugs with the very long list of chemicals and its curative nature. India is the eighth largest country having rich plant diversity with a total of around 47.000 species, of which more than 7500 species are being used as medicinal plants. Plant products are used as main source of medicine throughout the world for treating various human ailments. About 50% of the present day medicines in the United States of America are derived from natural sources especially from various plants (Copping, 1996). The use of traditional medicine in both developing and developed countries is significantly increasing in recent times.

TAXONOMY

Kingdom: Plantae

Division: Magnoliophyta.

Class: Liliopsida.

Order: Acorales.

Family Acoraceae.

Species: calamus/ *A. aromaticus* / *A. calamus* var. Genus *Acorus*

A. calamus is a perennial plant with creeping and extensively branched, aromatic rhizome, cylindrical, up to 2.5 cm thick, purplish-brown to light brown externally and white internally. The leaves of *A. calamus* has a single prominent midvein and then on both sides slightly raised secondary veins and many, fine tertiary veins. This makes it clearly distinct from *Acorus americanus*. The leaves are between 0.7 and 1.7 cm wide, with average of 1 cm. The sympodial leaf of *A. calamus* is somewhat shorter than the vegetative leaves. The margin is curly- edged or undulate. Plants are very rarely flower or set fruit, but when they do, the flowers are 3 to 8 cm long, cylindrical in shape, greenish brown and covered in a multitude of rounded spikes. The spadix, at the time of expansion, can reach a length between 4.9 and 8.9 cm. The fruits are small and berry-like, containing few seeds. Flowers from early to late summer depending on the latitude, grows wild in marshy places up to 2000 m altitude in the Himalayas. Manipur, Naga Hills and in some parts of South India. There are only two species in the genus *Acorus*.



Photographs of *Acorus calamus* : (A) Natural habitat, (B) Fresh rhizome, (C) Dried rhizome

The other species in this genus is *Acorus gramineus*. native to eastern Asia commonly called as Japanese sweet flag, Japanese rush, grassy-leaved sweet flag, dwarf sweet flag is an aquatic or wetland perennial with semi evergreen grass like foliage. It has narrow, 6 to 14 in (15-35.6 cm) glossy leaves and looks like thick, lush grass. The leaves are carried in two ranks, like opposing fans. They are flat, about 0.5 in (1.3 cm) wide and tend to flop over. The insignificant flowers, shaped like little horns, are produced in midsummer on erect hollow stems. Usually, only plants grown in water produce flowers.

The parts used are leaves, root (rhizome) and stem. In Asia, Sweet flag has been used for at least the last 2000 years. The ancient peoples of China used it to lessen swelling and for constipation. In Ayurvedic medicinal practice India, the rhizomes have been used to cure several diseases like fever, asthma and bronchitis, and as a sedative. Native tribes used it to treat a cough, made a decoction as a carminative and as an infusion for cholic.

Medicinal herbs such as *A. calamus* are quite promising in the recent therapeutic scenario, with a large number of people favouring remedies and health approaches that are free from the side effects often associated with synthetic chemicals. In this review, we try to summarise the ethno- medicinal uses, botanical descriptions, phytochemical constituents, and biological activity of the plant parts, as well as the molecular targets of *A. calamus*, which we hope will serve as a good base for further work on this plant.

Conclusion: In the future, experiments should be carried out to exploit the full potential of this crop, and this plant species should be properly identified and conserved to avoid extinction.

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