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Adiantum Caudatum L. Mant.: Walking Maidenhair Fern Characteristics, Distribution, and Applications

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ABSTRACT

Adiantum caudatum, commonly referred to as the walking maidenhair fern, is a species of fern recognized for its distinctive trailing fronds and ornamental value. Native to tropical and subtropical regions, this plant has significant ecological, medicinal, and ornamental applications. This article explores the taxonomy, morphology, habitat, ecological significance, and potential applications of *Adiantum caudatum*, presenting an updated perspective on its role in various domains.

INTRODUCTION

Ferns are among the oldest vascular plants, with a rich evolutionary history. *Adiantum caudatum* belongs to the family Pteridaceae (Adiantaceae) and is notable for its cascading growth habit and unique reproduction strategy. Its adaptability to diverse habitats and medicinal properties has drawn attention from botanists, horticulturists, and ethno-pharmacologists alike. This paper aims to provide an in-depth analysis of *Adiantum caudatum*, contributing to the growing body of knowledge on this versatile species.

ADIANTUM CAUDATUM L. MANT.

MORPHOTAXONOMICAL ANALYSIS

Rhizome short, erect bearing dense tuft of fronds, young parts covered by dark brown scales with pale dentate and hairy edges; vascular bundle dictyostelic, hypodermis sclarenchymatous, cells of inner cortex and pith sclerotics; tracheiary elements of protoxylen thin walled with annular ring, metaxylem are scalariform having uni-to biseriate, circular to oval simple pits; fronds simple pinnate, close sub-serrate, gradually smaller towards the distal end, occasionally ended into vegetative buds, dimidiate, lower mar- gin entire, upper margin regularly dissected into narrow truncate pri- mary lobes; petiole dark purple to black, clothed with dark reddish stiff multicellular hairs, in t.s it is almost round, vascular strand single almost U-shaped with adaxial ends slightly reflexed; laminal texture stiff, both surface, densely hairy, epidermal cells of both surface equally sinuous, stomata polocytic; veins prominent on the upper sur- face, radiate from short pinnae stalk; sori borne on the apices of the reflexed indusial lobes bearing hairs, sporangial stalk 3-celled at distal end, annulus vertical 14-17 celled, spores trilete, tetrahe-dral, laesural arm 18 µ long, perispore granulate to verrucate, os sionally peeled off from exospore, 33-35 x 40-45.

The fern is characterized by its delicate, pinnately compound fronds with black stalks, giving it a graceful appearance. The sori are found on the undersides of the leaflets, covered by reflexed margins that act as false indusia. The plant propagates vegetatively, with creeping rhizomes producing new plants at the tips of trailing fronds—a trait responsible for its common name, the walking maidenhair fern.

HABITAT

It is thrives in shaded, moist environments with well-drained, humus-rich soil. It is often found on forest floors, rocky crevices, and near water bodies. The species is widely distributed across tropical Asia, parts of Africa, and the Pacific islands. It has been introduced to various regions for ornamental use.

ETHNO BOTANICAL USES

Fronds and rhizome are used in fever and cough. (Sen and Ghosh, 2011). Leaf paste is applied for burns, cuts and wounds. It is also used as an expectorant. (Thulsi Rao et al., 2007). Plant and rhizome cures cough and fever. Antihelmintic. Used in dysentery, ulcer, burning sensation and in epileptic fits. The fronds are used in pulmonary catarrach. Frond paste with warm mustard oil applied on neck to get relief from cough. The plant is also used in bronchitis and asthma. Fronds are used for cure of caugh, fever and diabetes als used as externally for remedy of skin disease. As an epilithic or terrestrial fern, *Adiantum caudatum L.* plays a vital role in preventing soil erosion in its natural habitat. The dense foliage also provides shelter for small invertebrates and contributes to the microhabitat diversity of forest ecosystems.

CONCLUSION

Adiantum caudatum is a versatile fern with significant ecological, medicinal, and ornamental value. Its ability to thrive in varied habitats and its potential health benefits underscore the importance of further research and conservation initiatives. Understanding the fern's biology and applications can aid in its sustainable use and preservation for future generations.

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