MICROMORPHOLOGICAL AND PHYTOCHEMICAL PROFILING OF DELPHINIUM SUAVE HUTH. FROM HINDUKUSH RANGE, LOWER DIR KHYBER PAKHTUNKHWA PAKISTAN

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Abstract

This is a very first attempt to study various parameters of a medicinal plant, *Delphinium suave* Huth. The plant is erect, geophytic, herbaceous, with tuberous root, trifid in a palmatipartite, strigose cuneate leaf and white spurred zygomorphic flower. The root was isodiametric phellem with single non-glandular trichomes. The stem revealed single-layered cuticle, multiseriate epidermis, cortex, pith ray and uniserate bowed non-glandular trichomes. The leaf was amphistomatic, showed tapering trichomes, prismatic crystals and ranunculaceous stomata with circumference 144.66-182.67 µm. Pollen grains in Light Microscopy (LM), were prolate, spheroidal trizonocolpate, isopolar, radiosymmetric, scabrate, elliptic and monads. Scanning Electron Microscope (SEM) pollen surface was scabrate, monad, size varied from 18.06 µm-16.67µm, colpus to inaperturate, tricolpate, ornamented, echinus, isopolar, isodiametric and circular. SEM roots showed sclerenchymatic tissues, stellate, glandular, non-glandular trichomes and crystals. The stem showed scalariform, pitted vessels, warty protuberances, unicellular, silicified, non-glandular trichomes. Leaves powder revealed, simple, unicellular, tapered headed, uniseriate, sessile, capitate, unbranched glandular, non-glandular, trichomes with crystals. Capitate, stellate, circular, unicellular, branchy trichomes were observed for the first time through SEM. Powder drug study of root, stem leaves through LM also revealed different tissues. Preliminary phytochemical revealed alkaloids, anthocyanins, anthraquinones, coumarins, flavones, mucilages, saponins, steroids, terpenoids, volatile oils and proteins. GC/MS showed 36 compounds in roots 33 in stem while 41 in leaves. Fluorescence analysis of roots, stem and leaves showed variation in colour when treated with chemicals. This study will assist pharmacognostic exploration, authentication from adulterants/allied species for consistent quality, resulting in safe use, preservation and efficacy.

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