

Exploring the phytochemical wealth of *Platycladus orientalis* (L.) franco through solvent-based and essential oil extracts

Ankitha S, Shwetha Ullegaddi, Shweta GM, Deepak Gowda HS, Madhu Kumar DJ and Manasa DJ

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Abstract

Platycladus orientalis (L.) Franco, an evergreen monoecious conifer of the Cupressaceae family, is native to China and widely distributed across Asia and Europe. This study examined the phytochemical composition and pharmacological potential of methanolic leaf extract (MLE), n-hexane leaf extract (HLE), and essential oil (EO) from its leaves. Soxhlet extraction and hydro-distillation were used to obtain the extracts, followed by phytochemical screening and quantitative analysis of total phenolic, flavonoid, alkaloid and tannin contents. Phenols, flavonoids, terpenes, glycosides, proteins, and amino acids were detected in all extracts, with MLE showing the highest phenolic (507.01 ± 14.20 mg/g), flavonoid (283.17 ± 8.21 mg/g), and alkaloid (135.40 ± 5.16 mg/g) levels. GC-MS profiling of the extracts and oil revealed major bioactive compounds. Identified compounds included α -Atlantone, cis-Thujopsene, 10, 12-pentacosadiynoic acid, and 3-methyl-5-(propan-2-yl) phenol, indicating antioxidant, anticancer, anti-inflammatory, and antimicrobial potential. These findings support the species traditional medicinal uses.

Keywords: *Platycladus orientalis*, essential oil, phytochemistry, GC-MS

1. Introduction