

Towards a better understanding of *Artemisia vulgaris*: botany, phytochemistry, pharmacological and biotechnological potential

ABSTRACT

Artemisia vulgaris is one of the important medicinal plant species of the genus *Artemisia*, which is usually known for its volatile oils. The genus *Artemisia* has become the subject of great interest due to its chemical and biological diversity as well as the discovery and isolation of promising anti-malarial drug artemisinin. *A. vulgaris* has a long history in treatment of human ailments by medicinal plants in various parts of the world. This medicinal plant possesses a broad spectrum of therapeutic properties including: anti-malarial, anti-inflammatory, anti-hypertensive, anti-oxidant, anti-tumoral, immunomodulatory, hepatoprotective, anti-spasmodic and anti-septic. These activities are mainly attributed to the presence of various classes of secondary metabolites, including flavonoids, sesquiterpene lactones, coumarins, acetylenes, phenolic acids, organic acids, mono- and sesquiterpenes. Studies related to *A. vulgaris* morphology, anatomy and phytochemistry has gained a significant interest for better understanding of production and accumulation of therapeutic compounds in this species. Recently, phytochemical and pharmacological investigations have corroborated the therapeutic potential of bioactive compounds of *A. vulgaris*. These findings provided further evidence for gaining deeper insight into the identification and isolation of novel compounds, which act as alternative sources of anti-malarial drugs in a cost-effective manner. Considering the rising demand and various medical applications of *A. vulgaris*, this review highlights the recent reports on the chemistry, biological activities and biotechnological interventions for controlled and continuous production of bioactive compounds from this plant species.

Keyword: Asteraceae; Artemisinin; Essential oils; Mugwort; Pharmacology