

SHORT COMMUNICATION



## Schizonticidal antimalarial sesquiterpene lactones from *Magnolia champaca* (L.) Baill. ex Pierre: microwave-assisted extraction, HPTLC fingerprinting and computational studies

Eti Mehrotra<sup>a</sup>, Jyotsna Vishwakarma<sup>b</sup>, Avinash C. Tripathi<sup>a</sup>, Pankaj K. Sonar<sup>a</sup> and Shailendra K. Saraf<sup>a</sup> 

<sup>a</sup>Faculty of Pharmacy, Division of Pharmaceutical Chemistry, Babu Banarasi Das Northern India Institute of Technology, Lucknow, India; <sup>b</sup>Faculty of Pharmacy, Division of Pharmacology, Babu Banarasi Das Northern India Institute of Technology, Lucknow, India

### ABSTRACT

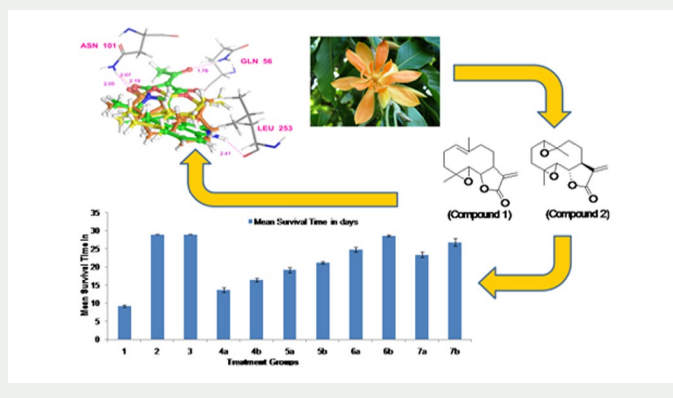
The present study explored the schizonticidal potential of traditionally used *Magnolia champaca* (L.) Baill. ex. Pierre flowers, identifying constituents of interest. The extraction of phytoconstituents was carried out by microwave-assisted technique, isolated via column chromatography, and characterised by various physicochemical, spectral (IR, 1H-NMR and Mass) and chromatographic (HPTLC) techniques. Both the isolated compounds (parthenolide and costunolide diepoxide) exhibited potent schizonticidal antimalarial activity during primary screening in rodent models, with maximum parasitaemia suppression (85.18% and 83.65%, respectively) at a dose of 20 mg/kg body weight when compared to the standard drugs chloroquine and artesunate. *In silico* techniques were employed to identify the probable biological target and mechanism of action of these isolated compounds. Molecular docking studies also predicted the binding orientations and multi-targeted action of these compounds, in particular costunolide diepoxide with maximum affinity towards SERCA and DHFR proteins. Additionally, favourable *in silico* ADMET parameters were envisaged through various computational programmes.

### ARTICLE HISTORY


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### KEYWORDS

Plasmodium; sesquiterpene lactones; parthenolide; costunolide diepoxide; HPTLC fingerprinting; molecular docking



**CONTACT** Shailendra K. Saraf  dirpharmnic@gmail.com

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