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Chromatographic Isolation and Spectroscopic Identification of Phytoconstituents of *Ficus religiosa* Linn. Stem Bark

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ABSTRACT

Background: *Ficus religiosa* L. (Moraceae) known as Peepal, Bodhi and Ashwattha tree, is a native to India and south-eastern Asian countries. It is considered as a sacred tree in most of the part of south-eastern Asia. Traditionally it is used to treat bacterial infections, asthma, bronchitis, chicken pox, constipation, cough, diabetes, epilepsy, gastric problems, diarrhoea, leprosy, liver diseases, menstrual irregularities, migraine, sexual disorders, tuberculosis and ulcers. The bark possesses aphrodisiac, anti-inflammatory, astringent, antiseptic and refrigerant properties, used to treat anxiety, diabetes, boils, blisters, burns, diarrhoea, dysentery, gonorrhoea, inflammation, gout, piles, skin diseases, urinogenital disorders, vomiting, wounds and to improve skin complexion. Ayurvedic formulations, such as *Chanda-nasavam, Nalpamaraditailam, Nyagrodhadi churna* and *Saribadyasavam contain F. religiosa* bark as an important ingredient. The aim of the study was the phytochemical investigation of the stem bark of *F. religiosa*.

Methods: The stem bark of *F. religiosa* (1 kg) was air dried and powdered. Extraction of coarsely powdered bark was done exhaustively with methanol (2.5 L) using Soxhlet apparatus for 12 h. Isolation of phytoconstituents was performed on glass column chromatography using silica gel. Precoated TLC plates were utilized for analysis of eluents and the spots were visualized under UV lamp (254 and 366 nm). The structure of isolated phytoconstituents was established on the basis of spectroscopic methods and chemical reactions.

Results: Phytochemical investigation of the methanol extract of *F. religiosa* stem bark led to the isolation of a new naphthyl substituted phytosterol characterized as naphthyl-1′,3′-diol-1′-3β-sitosteryl-3′-linoleinate (1) and a new lanostane type-triterpenic ester elucidated as lanostan-19-oic acid-3β-olyl-oleate (2) along with the known steroids β-sitosteryl oleate (3) and β-sitosterol glucoside (4).

Conclusion: The present study has enhanced the knowledge base related to *F. religiosa*. Isolated compounds (1) and (2) are reported for the first time from this plant and may be considered as the markers for the quality control analysis of marketed herbal formulations of *F. religiosa*.

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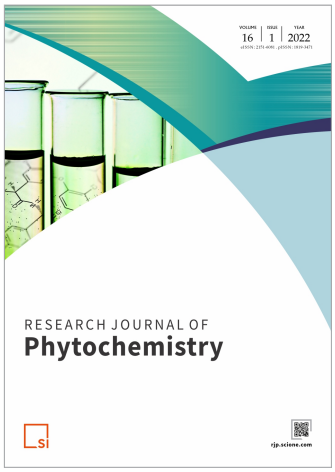

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