VOLUME 16 | ISSUE 1 | YEAR 2022
eISSN: 2151-6081 . pISSN: 1819-3471

RESEARCH JOURNAL OF
Phytochemistry

rjp.scione.com

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All these abstracts were presented at the AICTE sponsored e-Conference on Phytopharmaceuticals held on August 6, 2020 by School of Pharmaceutical Education and Research, Jamia Hamdard, New Delhi.

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Preparative Isolation, Characterization and Estimation of *Iso*-Alantolactone from *Inula racemosa* Roots

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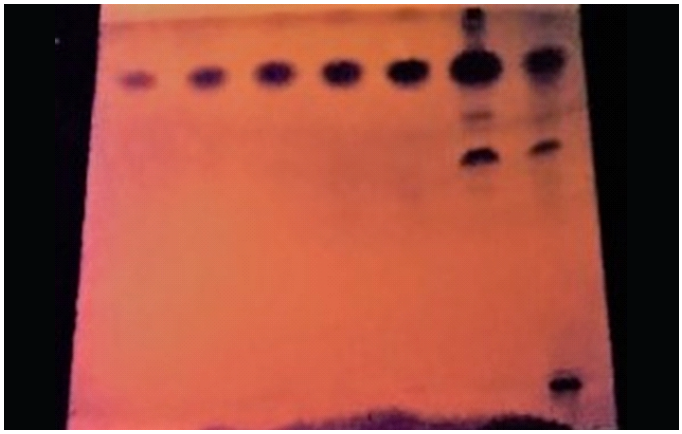
ABSTRACT

Aim: Our study mainly aimed at the chromatographic separation and spectroscopic characterization of *iso*-alantolactone from *I. racemosa* and its estimation.

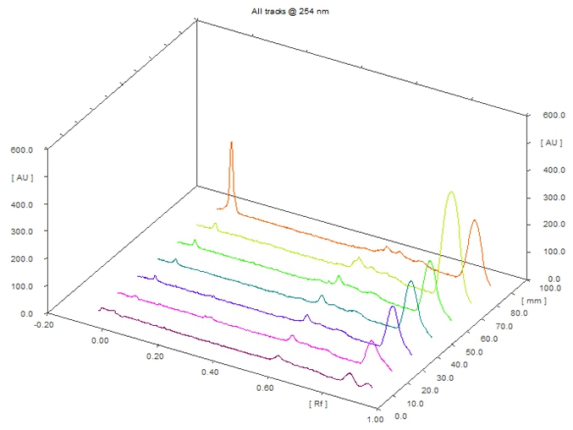
Method: The first step involved the preparation of methanolic extract of *Inula racemosa* (roots), fractionation with hexane and dichloromethane, and the isolation of compounds using MPLC (Flash) system. It was followed by characterization of sesquiterpenes isolated by spectroscopic methods. Finally one of the isolated compounds was used for profiling of extracts and fractions of *I. racemosa* using HPTLC.

Result: MPLC of the extract resulted in the isolation of four compounds. On the basis of spectroscopic data analyses, the compounds were found to be *iso*-alantolactone and three new dimeric lactones. The mobile phase composition was optimized to develop a suitable and accurate HPTLC densitometric method for the analysis of *iso*-alantolactone in extracts. Ascending development to a distance of 8 cm with toluene-chloroform-ethanol (8:8:2 *v/v*) gave sharp, symmetrical and well resolved bands at the R_f value of 0.81 ± 0.01. The optimum saturation time was found to be 10 min. The detection was carried at 254 nm. Based on HPTLC analysis, the content of isoalantolactone in the hexane fraction was found to be double than that in the methanol extract.

Conclusion: *Iso*-alantolactone was isolated and used for profiling of *I. racemosa* extract.



TLC plate showing spots of *iso*-alantolactone (tracks 1-5), hexane fraction (track 6) and methanolic extract (track 7) of *Inula racemosa* as seen after spraying with anisaldehyde-sulphuric acid reagent (Tracks are numbered from left to right)



HPTLC 3D graph showing different concentrations of *iso*-alantolactone and comparison with hexane fraction and methanol extract of *Inula racemosa* as seen at 254 nm

ISSN: 2151-6081 (Online)
ISSN: 1819-3471 (Print)

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Journal of Phytochemistry

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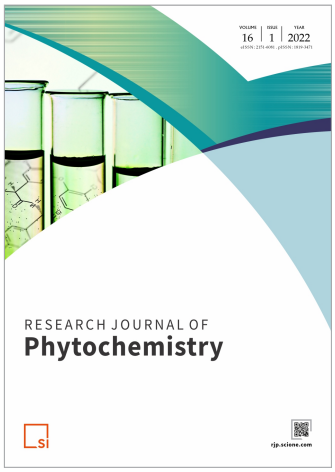

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