

Isolation, Characterization and Activity of the Flowers of *Rhododendron arboreum* (Ericaceae)

PANKAJ KUMAR SONAR^a, RANJIT SINGH^b,
SHAGUFTA KHAN^c and SHAILENDRA K. SARAF^{a*}

^aFaculty of Pharmacy,
Babu Banarasi Das Northern India Institute of Technology, Lucknow, India

^bSchool of Pharmaceutical Sciences,
Shobhit University, Meerut, India

^cFaculty of Pharmacy, Babu Banarasi Das National
Institute of Technology and Management, Lucknow, India

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Abstract: The flowers of *Rhododendron arboreum* have been reported to possess certain polyphenolic compounds. Thus, this study was aimed at the anti-microbial and phytochemical screening of the flowers. Important bioactive agents like steroids, saponins and flavonoids were detected in the flowers. Quercetin (a flavonoid) was isolated from the diethyl ether fraction of alcoholic extract by solvent-solvent extraction method. Isolated quercetin was identified and characterized by chemical tests, M.P., TLC, paper chromatography (with authentic marker) and spectroscopic methods like UV-Visible, FT-IR, ¹HNMR, ¹³CNMR and Mass spectroscopy. The anti-microbial activity of the alcoholic and aqueous extract and isolated quercetin were investigated against five bacterial and two fungal strains by agar well-diffusion method. The activity was found to be concentration dependent. Ethanolic extract was found to be more active in comparison to the aqueous extract. Hence, isolation was done with ethanolic extract. The lowest effective concentration of quercetin was found to be 12.5 mg/ml against *S.aureus* and *P.aeruginosa*. Both extracts and isolated quercetin were found ineffective against fungal strains. Quercetin may be one of the components responsible for the observed anti-microbial activity of the plant.

Keywords: *R. arboreum*, Quercetin, Antimicrobial activity, ERA, ARA.

Introduction

Rhododendron arboreum is a small tree with deep scarlet flowers, often associated with “banj” and “kharsu” plants¹, occurring in the high altitudes from 1500m to 6000m in Himalaya forests or Nilgiri Hills in South India. It is Nepal’s national flower, locally known as *Lali Guras* or ‘rose tree’ in English, belonging to family Ericaceae. In India, *Rhododendron* is the state flower of Nagaland and state tree of Sikkim².