

Rhododendron Campanulatum D. Don: A Critical Review

Pushap Lata^{1*}, Manju Vyas Singh², Indu Yadav³¹Department of Quality Assurance, Delhi Institute of Pharmaceutical Sciences and Research (DIPSAR), Sector-3 Pushp Vihar, New Delhi India²Associate Professor, Department of Pharmacognosy & Phytochemistry, Delhi Institute of Pharmaceutical Sciences and Research (DIPSAR), Sec-3 Pushp Vihar, New Delhi, India³Department of Pharmaceutical Chemistry, Delhi Institute of Pharmaceutical Sciences and Research (DIPSAR), Sec-3 Pushp Vihar, New Delhi, India

*Corresponding author: Pushap Lata

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Abstract

Review Article

Rhododendron is genus of 1024 species of woody plant belongs to family *Ericaceae*. Mostly found in Northern Himalaya region. In India it commonly known “burans”. Plant has been proven to possess ant proliferative, anti-inflammatory, antibacterial, immunomodulatory and antioxidant due to the presence of flavonoids, glycosides and triterpenoids. Traditionally used in cold, headache, and skin disease.

Keywords: Anti-inflammatory, Pharmacological, Immunomodulatory, Antioxidant.

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INTRODUCTION

The name rhododendron derives from Greek words “rhodo” that means rose and “dendron” means tree. Rhododendron genus belongs to family *Ericaceae*. The first record of Rhododendron can be found in 401 B.C. on the Turkish coasts of the black sea.

Rhododendron campanulatum D. Don also known as bell rhododendron because it contains bell shaped corolla. It is a state flower of Himachal Pradesh. It is an evergreen shrub & hermaphrodite (has both male and female organs) and is pollinated by insects.

Table-1: Common Names: [1]

English	Tree Rhododendron
Garhwali	Chimura
Hindi	BuransCherailu
Kashmir	Gaggar, Nichnai
Kuman	Chimul
Chinese	Zhong hua du juan

Table-2: Morphological characteristics of plant [2]

Leaves	<ul style="list-style-type: none"> • Elliptical and oval • Dark glossy green above & brown below
Flower	<ul style="list-style-type: none"> • Light pink • Bell shaped
Bark	Greyish brown
Fruit	Dry capsule with oblong and compressed seed



Fig-1

Life cycle: Flower blooms in the month of May -July and bear fruit in the month of October to December. The leaves of plant last throughout the year.

It found in the Himalayan region of Northern India, Bhutan, Nepal and South East Tibet [2]. In India is found in Himachal Pradesh, Jammu & Kashmir, U.P. Sikkim and Arunachal Pradesh.

Geographical Distribution

Table-3: Cultivation and Propagation [4, 1]

Cultivation status	Mostly found in wild
Soli requirement	Humus rich lime free soil
pH of soil required	4.5-5.5 (acid soil)

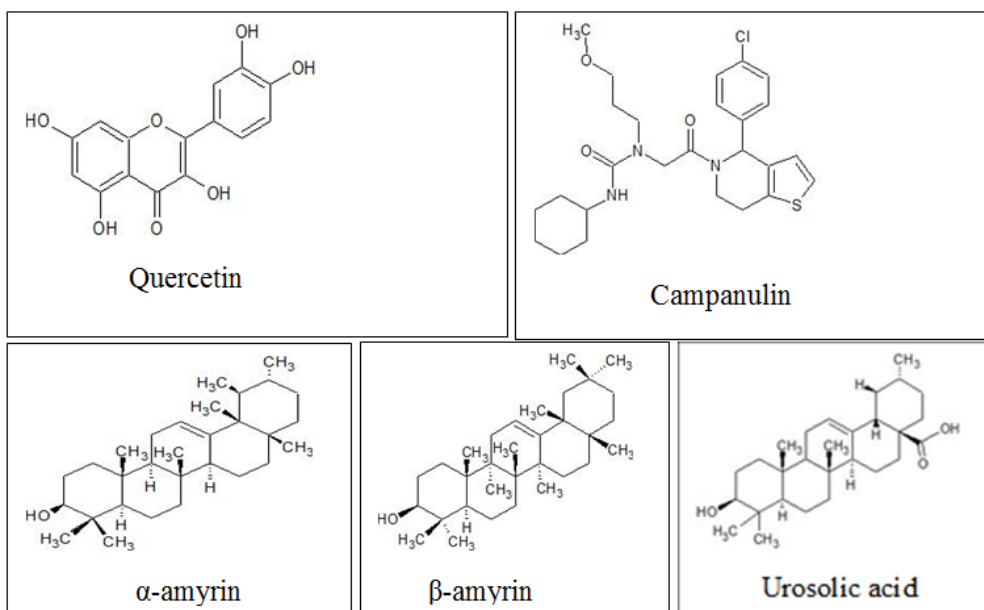
Table-4: Taxonomic Classification [7]

Superregnum	Eukaryote
Regnum	Plantae
Cladus	Angiosperms
Cladus	Eudicots
Cladus	Core eudicots
Cladus	Asterids
Cladus	Ericales
Familia	<i>Ericaceae</i>
Subfamilia	<i>Ericoideae</i>
Tribus	<i>Rhodoreae</i>
Genus	<i>Rhododendron</i>
Subgenus	<i>R. subg. Hymenanthes</i>
Section	<i>R. sec. Pontica</i>
Subsection	<i>R. subsect. Campanulata</i>
Species	<i>Rhododendron campanulatum</i>

Phytochemical Constituents [1]

GCMS analysis of methanolic extract of leaf revealed the presence of 49 phytochemical compounds. Out of which Baccharis oxide, alpha and beta-amyrin, betuligenol, geranyl acetate, and phthallic acid was

present in major amount. Chemical examination of the leaf of plant report the presence of urosolic acid, quercetin, saturated triterpenoid alcohol epifriedelanol, and a new triterpenoid compound “campanulin”.



Uses: In India and Nepal roots are used in treating boils and leaves are mixed with tobacco and used as a snuff in the treatment of cough, cold,

headache. Fever. The juice of the leaves is also used in rheumatism, sciatica and skin disease, syphilis. 2 The dried twigs and wood are used in the treatment of

phthisis. Whole plant is used in sore throat. The wood is an excellent fuel but the smoke is irritant and acrid.

Pharmacological Activities

Antioxidant activity: Aqueous and methanolic extract of leaves of was shown the high free radical scavenging activity. HPLC analysis extract reported the presence of ascorbic acid, quercetin, gallic acid, and hesperidin [14].

Anticancer activity: Leaf extract of plant shows effective antiproliferative activities against cancer cell line and repression of VEGF (Vascular endothelial cell growth factor)[14].

Antibacterial activity: Acetone and methanolic extract of leaf of plant exhibits the effective antibacterial activity against *S.aureus*, *E.coli* *S. aeruginosa*, *Y.pestis*, *B.cereus*, *L. monocytogenes* bacteria [13].

Cytotoxic activity: methanolic extract of plant showed effective cytotoxic activity

Anti-inflammatory activity: methanolic extract of aerial parts plant has been shown the anti-inflammatory activity and was observed by measuring paw edema induced by carrageenan,

It was observed that the plant extract had shown the analgesic, antimotility, central nervous system depressant and depressant property [3].

An unusual oleanane triterpenoid was isolated from the aerial parts of *Rhododendron campanulatum* and the compound had shown antibacterial and immunomodulatory activity [8].

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