



Orchid flora of Rajouri district of Peer Panjal Himalaya of Jammu and Kashmir, India.

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Abstract

The present study provides a list of orchids in one of the districts of Peer Panjal Himalaya of Jammu and Kashmir. Twenty species were found from various habitats. The taxa were first analyzed taxonomically in the field, then photographed and finally specimens were collected for herbaria. The herbarium specimens were mounted on standardized herbarium sheets and deposited in the herbarium of the department of Botany KLDV (PG) College Roorkee Uttarakhand. A brief description and photo plates are provided in the article for future research works and reference.

Résumé

On trouvera dans cet article la liste des orchidées présentes dans le district de Rajouri, situé dans la région Jammu & Hashmir (Inde). Vingt espèces ont été répertoriées dans divers habitats. Les taxons ont d'abord été analysés sur le terrain et photographiés. Des spécimens ont été collectés en vue d'être déposés dans l'herbier du département botanique de KLDV (PG), du Collège Roorkee, dans l'Uttarakhand. Le caractère le plus spécifique de chaque taxon et des photographies de quelques espèces sont proposées pour servir de référence pour de futurs travaux.

Key words: Orchids, Peer Panjal Himalaya, Rajouri, Taxonomic, flora.

Introduction

Orchidaceae is one of the major families of angiosperms with a large number of plants. The plants belonging to this family are herbaceous with diverse habits. The Jammu and Kashmir state has remarkably diverse habitats and topographies from the subtropical of Jammu province to the higher reaches of the alpine zone of Kashmir Himalaya. It covers the variability of lands and habitats which consists of diverse mega biodiversity. Up to now several workers have done a lot of work on the floristic diversity of the region, and have reported the occurrence of orchid species from different localities of the state (Duthie, 1906; Stewart, 1972; Singh & Kachroo, 1976; Kachroo *et al.*, 1977; Sharma & Kachroo, 1981; Dhar & Kachroo, 1983; Polunin & Stainon, 1984; Naqshi *et al.*, 1989; Kapur & Sarin, 1990; Singh & Kachroo, 1994; Dickore & Nusser, 2008; Akhter *et al.*, 2011). Till date, the number of orchids reported from the state ranges from 50–60 species only. However the orchid flora of the Rajouri district has not been documented. Dar *et al.* (2014) really worked on the angiospermic flora of the district, however except for the Orchidaceae.

Material and methods

The district Rajouri is located at 32°57' to 33°34' N and 74°00' to 74°48' E, in the foothills of the Peer Panjal Range. The district consists of the subtropical region of Nowhsehra, Sunderbani, Kalakote and some areas of Rajouri Tehsils to temperate areas including Thanamandi, Darhal, Koteranka and Budhal etc. and subalpine and alpine regions of upper reaches of Peer Panjal. The oak forests with grasslands are the favorite habitat for several orchid species. The orchid species were collected from the district in different seasons throughout the year from 2019 to 2021 from almost all the regions of the district. The specimens were first analyzed in the field, and then collected in view of making herbarium specimens to be deposited in the herbarium of the Department of Botany KLDVA (PG) College Roorkee. The specimens were identified using the online herbaria as well as available regional and national literature (Hooker, 1894; Stewart, 1972; Sharma & Kachroo, 1981; Duthie, 1906; Misra, 2007; Akhter *et al.*, 2011; Jalal *et al.*, 2008; Jalal & Jayanthi, 2015; online Flora of China and <https://wcvp.science.kew.org/>).

Results

The present study provides documentation about 20 wild species belonging to 15 genera. The details including habit, specimen examined and phenology are presented in the following table 1.

Table 1. List of orchid species, habit, specimen examined and their flowering seasons.

Species	Habit	Specimen examined	Flowering
<i>Brachycorythis obcordata</i> Ham. ex D. Don Summerhayes (Fig.1, A)	Terrestrial; tuberous herb, 5-22 cm tall.	Grasslands of Chambitrar (Rajouri) at an altitude of 1436 m asl. (Mushtaq Ahmed and Manjul Dhiman 2021).	June-Aug.
<i>Calanthe plantaginea</i> Lindley	Terrestrial saprophytic herbs.	Oak forests of Panihad and Barsala (Rajouri) at an altitude range of 1300- 1430 m asl.	Feb.-Apr.
<i>Calanthe tricarinata</i> Lindley	Terrestrial; leaves lanceolate or acuminate; flowers orange-green.	Pine forests of Nowshehra (Rajouri) at an altitude of about 795 m asl.	July-Aug.
<i>Cephalanthera longifolia</i> (Linnaeus) Fritsch	Terrestrial; leaves 2 which appear much after flowering; flowers pale- pink.	Pine forests of Nowshehra (Rajouri) at an altitude of about 795m asl.	May-July
<i>Cymbidium macrorhizon</i> Lindley (Fig.1, B)	Terrestrial; flowers white, purple-yellow, lip white, spur very short.	Sloppy grassland of Chambitrar (Rajouri) at an attitude of 1334m asl.	Jun.- Aug.
<i>Epipactis veratrifolia</i> Boissier ex Hohenacker (Fig.1, C)	Terrestrial; leaves dark- green with whitish green spots; flowers fragrant, white flushed with brownish-pink.	Madoon, Dana (Rajouri) at an altitude of about 2186 m asl.	May-July
<i>Eulophia dabia</i> (D. Don) Hochreutiner	Terrestrial; flowers white.	Specimen examined: Barsala (Rajouri) at an altitude of about 1280 m asl.	Mar.-Apr.
<i>Eulophia herbacea</i> Lindley (Fig.1, D)	Terrestrial; flowers white or greenish- white.	Oak forests of Chambitrar and Panihad (Rajouri) at an altitude of about 1467 m asl.	June-July
<i>Goodyera repens</i> (Linnaeus) R. Brown	Terrestrial; flowers greenish-white.	Grasslands of Chambitrar (Rajouri) at an altitude of about 1435 m asl.	July-Aug.
<i>Habenaria commelinifolia</i> (Roxburgh) Wallich ex Lindley	Terrestrial; flowers greenish-white.	Grasslands of Chambitrar (Rajouri) at an altitude of about 1435 m asl.	Sep.-Oct.

<i>Habenaria intermedia</i> D. Don (Fig.1, E)	Terrestrial; flowers greenish-white.	Grasslands of Chambitrar (Rajouri) at an altitude of about 1435 m asl.	July-Aug.
<i>Habenaria pectinata</i> D. Don	Terrestrial; flowers greenish-white.	Specimen examined: Grasslands of Chambitrar (Rajouri) at an altitude of about 1435 m asl.	Aug. -Sep.
<i>Habenaria plantaginea</i> (Lindley) Lindley	Terrestrial; flowers white.	Sialsui (Rajouri) at an altitude of about 913 m asl.	Sep.-Oct.
<i>Habenaria stenopetala</i> Lindley (Fig.1, F)	Terrestrial; flowers pale green, lip reddish brown, and as long as the petals.	Grassland and oak forests of Koteranka (Rajouri) at an altitude of about 1956 m asl.	Sep.-Oct.
<i>Herminium lanceum</i> (Thunberg ex Swartz) Vuijk	Terrestrial; tuberous herb, flowers green, small.	Oak forests of Chambitrar (Rajouri) at an altitude of 1509 m asl.	July-Sep.
<i>Nervilia gammieana</i> (Hooker f.) E. Pfitzer	Terrestrial; flowers pink-purple, leaves plaited.	Specimen examined: Kotedhera (Rajouri) at an altitude of 1043 m asl.	May-July
<i>Nervilia plicata</i> (Andrews) Schlechter	Terrestrial; small dotted flowers.	Grasslands of Khambi Kotedhera (Rajouri) at an altitude of 1043 m asl.	May-July
<i>Platanthera latilabris</i> Lindley	Terrestrial; flowers green.	Grassland of Pathri (Rajouri) at an altitude of 2345 m asl.	July-Aug.
<i>Spiranthes sinensis</i> (Persoon) Ames (Fig.1, G)	Terrestrial; flowers small, pink or white.	Grasslands of Maddar Koternaka (Rajouri) at an altitude of 2430 m asl.	June-Aug.
<i>Zeuxine strateumatica</i> (Linnaeus) Schlechter	Terrestrial; perennial herb with white yellow lip.	Nowshehra (Rajouri) at an altitude of 803 m asl.	May-June

Discussion and conclusion

Most of the species are terrestrial except one species *Cymbidium macrorhizon* which is saprophytic. The maximum number of species (5) is observed into the genus *Habenaria* followed by *Calanthe* (2) and *Nervilia* (2) while the other 11 genera are monospecific. This list includes some threatened species such as *Habenaria intermedia* and *Calanthe* species, while some other species also face anthropogenic disturbances and threats.

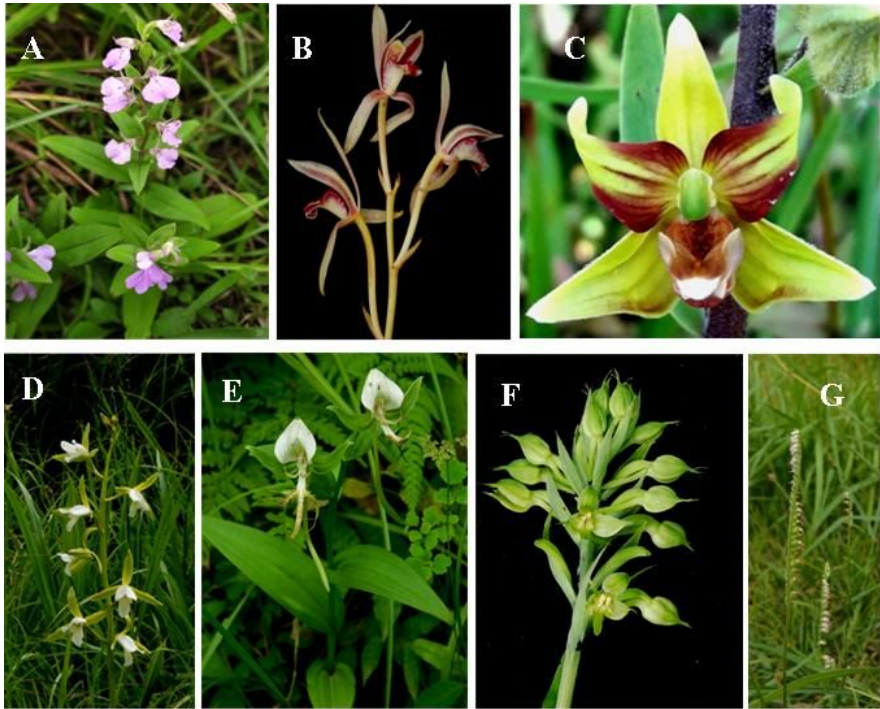


Fig. 1: Some flowers of Rajouri

A. *Brachycorythis obcordata*; B. *Cymbidium macrorhizon*; C. *Epipactis veratrifolia*; D. *Eulophia herbacea*; E. *Habenaria intermedia*; F. *Habenaria stenopetala*; G. *Spiranthes sinensis*

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