IJPS INTERNATIONAL JOURNAL OF PLANT SCIENCES
Volume **8** | Issue 2 | July, 2013 | 294-296

RESEARCH ARTICLE

Cheirostylis yunnanensis Rolfe (Orchidaceae): A new angiospermic record for Darjeeling Himalaya of West Bengal

■ RAJENDRA YONZONE AND SAMUEL RAI

SUMMARY

Present paper deals with the *Cheirostylis yunnanensis* Rolfe (Orchidaceae) is collected from Mangaldara, 8th mile, Kalimpong of Darjeeling Himalaya of West Bengal and is reported as new angiospermic record for the Darjeeling Himalayan region of India. An updated nomenclature, importaznt synonyms, illustrated description, habitat, flowering and fruiting, altitudinal range, specimen examined, present status and general distribution of species has also been given.

Key Words : New record, Orchidaceae, *Cheirostylis yunnanensis*, Darjeeling Himalaya, India

How to cite this article : Yonzone, Rajendra and Rai, Samuel (2013). *Cheirostylis yunnanensis* Rolfe (Orchidaceae): a new angiospermic record for Darjeeling Himalaya of West Bengal, India. *Internat. J. Plant Sci.*, **8** (2) : 294-296.

Article chronicle : Received : 18.10.2012; **Revised :** 05.03.2013; **Accepted :** 02.05.2013

Orchids are considered to be the most highly evolved among the monocotyledons. In India, Orchids from 9 per cent of our flora and are the largest and highly advanced botanical family of higher plants. It is estimated that at about 25,000-35,000 species with 800-1,000 genera are distributed throughout the world. About 1300 species with 140 genera of Orchid species are found in India with temperate Himalayas as their natural home (Yonzone and Kamran, 2008).

The genus *Cheirostylis* was established in 1825 by Carl Blume. The genus comprises about 25 species distributed from South East Africa, South East Asia, Japan, the Philippines to New Guinea (Pearce and Cribb, 2002).

Plants terrestrial herbs with stems decumbent and succulent at the base. Rhizome decumbent. Leaves few, petiolate. Inflorescence terminal, loosely few-flowered, racemose. Flowers small, resupinate. Sepals slender. Petals shorter than the sepals. Lip saccate or cymbiform at the base, channeled, 2-callose at base. Column short; stigmas 2; pollinia 2.

MEMBERS OF THE RESEARCH FORUM

Author to be contacted :
RAJENDRA YONZONE, Department of Botany, St. Joseph's College, DARJEELING (W.B.) INDIA
Email: ryonzone99@gmail.com

Address of the Co-authors:
SAMUEL RAI, Darjeeling Krishi Vigyan Kendra (Uttar Banga Krishi Viswavidyalaya) Kalimpong, DARJEELING (W.B.) INDIA

Darjeeling is the northernmost district of West Bengal. The district is subdivided into four sub-divisions *viz*., Darjeeling Sadar; Kalimpong, Kurseong and Siliguri. It is bordered by Sikkim in the north, Terai and Dooars in the south, Bhutan in the east and Nepal in the west.

MATERIAL AND METHODS

The intensive field survey was conducted during the year 2007-2011 covering all the seasons of the year in the entire Darjeeling district including the forest areas, floral nurseries and farms of as low as Siliguri which is located at 150m to as high as Sandakphu-Phalut located at 3636m of the entire Darjeeling district of West Bengal. All the Orchids species found were recorded in the field note book with their necessary information. The relevant data from the field note books were then transferred to the labels of the herbarium sheets and computer. The specimens were also collected without uprooting and disturbing the plants in the nature. Normally, only 2-3 specimens of each species in flowering and fruiting stage were collected.

While working on Orchid flora of Darjeeling Himalaya, the authors came across interesting specimens of terrestrial Orchid species. After critical examination and comparison with other authenticated voucher specimens and literatures, an unknown species of terrestrial Orchid that was identified as *Cheirostylis yunnanensis* Rolfe (Orchidaceae) and was collected from Mangaldara, 8th mile Kalimpong Sub-Division

of Darjeeling Himalaya. A perusal of earlier literature related to the Orchid flora of Darjeeling (Hooker, 1888-1890; King and Pantling, 1898; Bruhl, 1926; Hara, 1966; Hara, 1971; Ohashi, 1975; Pradhan, 1979; Pradhan and Pradhan, 1997; Bose and Bhattacharjee, 1999 and Pearce and Cribb, 2002) revealed that the occurrence of this species has not been reported earlier from Darjeeling Himalayan region and hence the present collection is its first record of occurrence as *Cheirostylis yunnanensis* Rolfe for Darjeeling Himalaya of West Bengal, India. The newly collected specimens were processed and mounted on standard herbarium sheets followed Jain and Rao (1977) and have been deposited in the Herbarium of Department of Botany, St. Joseph's College, North Point, Darjeeling and Herbarium of Taxonomy and Ethnobiology Research Laboratory, Cluny Women's College, Kalimpong for future references. The ecological status was studied following the method given by Raunkiaer (1934) were carried out in the field. Quadrate plots of 5mx5m for terrestrial Orchid species were laid down diagonally in habitat rich field to find out the current status of this species from study areas. A detailed taxonomic account of the species along with habitat, altitudinal range, current ecological status, local distribution within Darjeeling and geographical distribution is provided here to authenticate the new record and facilitate its easy identification.

RESULTS AND DISCUSSION

The experimental findings obtained from the present study have been discussed in following heads:

Botanical enumeration :

Cheirostylis yunnanensis :

Rolfe in Bull. Misc. Inform. Kew 1896: 201. 1896. *Cheirostylis pabongensis* S.Z. Lucksom in Indian J. Forest. 20(3): 305. 1997 (Fig. 1).

Plant terrestrial; 10-16 cm tall. Pseudobulbs 2.6-3x0.8-1.3 cm, moniliform, prostrate, pale green, rooting along internodes. Leaves 3-5, 1.5-3x0.4-1.5 cm, ovate, acute to shortly acuminate, 5-veined, petiolate; petiole 5-7 mm long, subtubular. Inflorescence 2 to 3-flowered; peduncle 8-12 cm long, terete, puberulous, sheathed; peduncle 0.9-1.3 cm long; rachis 3-6.5 mm long, puberulous; pedicellate-ovary 6-8 mm long, shortly stalked, pubescent; floral bracts 4-8 mm long, ovate-lanceolate, acuminate, puberulous. Flowers 1-1.4 cm long; sepals green, tinged with pink at tips, lip white with 2 prominent green spots at base. Sepals 7-9x3.5 mm, subsimilar, puberulous, united at base to form a sepaline tube; dorsal sepal 8.5-9x3.7-4 mm long, elliptic, acute; lateral sepals 6.7-7.3x2.3-2.8 mm, elliptic, obtuse. Petals 6.5-7.5x1.8-2 mm, obovate-oblong to oblong-spathulate, falcate, obtuse, glabrous. Lip 1.1-1.4x1.2-1.3 cm (when spread); hypochile saccate, oblong, glabrous; epichile semi-circular, deeply 2-lobed, margins dentate; callus in sac with 2 rows of 3-5 setae. Column 2.4 mm long; stylidia erect, longer than rostellar arms; Anther cap 1.5x0.4 mm, ovate, acute; pollinia 1.5 mm long.

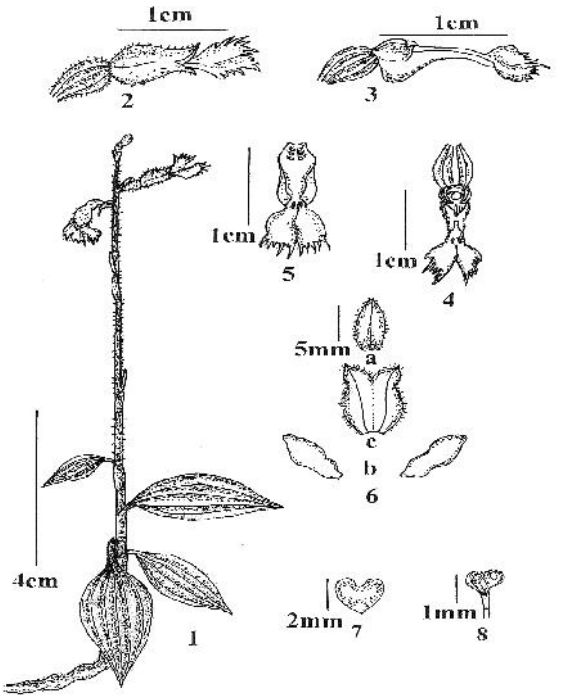

Fig. 1: ***Cheirostylis yunnanensis*** **Rolfe, 1. Habit (whole plant with inflorescence); 2. Side view of single flower; 3. Side view of ovary, column with anther in situ and lip; 4. Dorsal view of the same; 5. Lip; 6. Floral perigone, a. dorsal sepal, b. petals c. uniter lateral sepals; 7. Anther and 8. Pollinia**

Flowering and fruiting :

February-May.

Habitat :

Terrestrial on shady places.

Specimen examined :

Mangaldara, 8th mile Kalimpong Sub-Division of Darjeeling Himalaya, dt. 09.03. 2008 (West Bengal, India).

Altitudinal range :

600-1000m.

Current ecological status :

Rare in natural habitat.

Geographical distribution :

India (Sikkim); China, Thailand, Vietnam.

Conclusion :

At present, entire Orchidaceae family facing major threat in comparison to other plant species in the regions, because number of Orchid enthusiasts, researchers and traders visit the region each year in search of Orchid species. Indiscriminate collection, random felling of host trees for fire wood and timber

collection, forest fire, frequent landslides, rapid urbanization, shrinkage of forest and extension of agricultural lands cause greater harm in the natural population of the Orchid species resources of Darjeeling Himalayan region of West Bengal, India.

Acknowledgement :

The first author is thankful to the University Grants Commission, New Delhi, India for awarding the Fellowship on the research project titled "Studies on the Orchid Flora of Darjeeling Himalaya".

REFERENCES

Bose, T.K. and Bhattacharjee, S.K. (1999). *Orchids of India*. Revised Edition. Naya Prokash. Calcutta (W.B.) INDIA.

Bruhl, P. (1926). A guide to the Orchids of Sikkim. Bishen Singh Mahendra Pal Singh, Cannaught Place, Dehradun (UTTARAKHAND) INDIA.

Hara, H. (1966). *The flora of Eastern Himalaya*, Tokyo, University of Tokyo Press, JAPAN.

Hara, H. (1971). *The flora of Eastern Himalaya, Second Report*, University of Tokyo Press, JAPAN.

Hooker, J.D. (1888-1890). *The flora of British India*. Vol. **5** & **6**. L. Reeve & Co. LONDON, UNITED KINGDOM.

Jain, S.K. and Rao, R.R. (1977). *Field and herbarium methods*. Today and Tomorrowxs Printers and Publishers. NEW DELHI, INDIA.

King, G and Pantling, R. (1898). The Orchids of the Sikkim-Himalaya. *In Annals of the Royal Botanic Garden*, Calcutta 8 (W.B.) INDIA.

Ohashi, H. (1975). *The flora of Eastern Himalaya*, third report. University of Tokyo Press, JAPAN.

Pearce, N.R. and Cribb, P.J. (2002). *Flora of Bhutan. The Orchids of Bhutan*. Vol. **3**, part 3. Royal Botanic Garden, EDINBURGH, UNITED KINGDOM.

Pradhan, U.C. (1979). *Indian orchids guide to identification and culture*, (Vol. II) Premulaceae Books, Kalimpong (W.B.) INDIA.

Pradhan, U.C. and Pradhan, S.C. (1997). 100 Beautiful Himalayan Orchids and how to grow them, Premulaceae Books, Kalimpong (W.B.) INDIA.

Raunkiaer, (1934). *The life forms of plants of statistical plant geography*. Clarendon Press, Oxford, LONDON, UNIDED KINGDOM.

Yonzone, Rajendra and Kamran, A. (2008). *Ethnobotanical uses of Orchids* (Abstract). International Seminar "Multidisciplinary approaches in Angiosperm Systematics" October 11-13. Kalyani University, W.B. INDIA.