Natl. Acad. Sci. Lett. (November 2020) 43(6):567–571
https://doi.org/10.1007/s40009-020-00890-7

SHORT COMMUNICATION

Splachnobryum (Splachnobryaceae A.K. Kop.) a New Generic Record to the Mosses of Sikkim Himalaya, India

S. S. Dash[1] · Subhajit Lahiri[2] · Pamela Saha[2] · Asok Ghosh[3] · B. K. Sinha[1]

Received: 14 March 2018 / Revised: 3 August 2018 / Accepted: 9 January 2020 / Published online: 30 January 2020

Abstract *Splachnobryum obtusum* (Brid.) C. Muell. (Splachnobryaceae A.K. Kop.) has been recently collected from Dzongri regions of west district of Sikkim at an altitude of 3732 msl. The collection of this species from such a higher elevation in Sikkim indicates its greater adaptability to survive in a varied range of habitats in Sikkim Himalaya and also an indication for possible climate change. The description of the species along with an illustration is provided in the present paper. Occurrence of the genus *Splachnobryum* has been recorded for the first time from Sikkim Himalaya and also from a subalpine region.

Keywords Moss · Eastern Himalaya · New · Generic record · Sikkim · *Splachnobryum*

✉ S. S. Dash
ssdash2002@gmail.com

Subhajit Lahiri
lahiribot.bsi03@gmail.com

Pamela Saha
pamelasaha.mail@gmail.com

Asok Ghosh
asokcarex@gmail.com

B. K. Sinha
drbks2004@yahoo.co.in

[1] Botanical Survey of India, CGO Complex, Sector-1, Salt Lake City, Kolkata 700064, West Bengal, India

[2] Central National Herbarium, Botanical Survey of India, Howrah 711103, West Bengal, India

[3] Department of Botany, University of Burdwan, Burdwan 713104, West Bengal, India

Introduction

The genus *Splachnobryum* Muller: 1896 (Splachnobryaceae), consisting of about 10 species [1, 2], is distributed worldwide in the northern tropical and subtropical regions, except a few species that are introduced in temperate glasshouses in South America and Europe. The plants are usually grown in moist and wet inorganic calcareous subtracts, and commonly at low altitudes, extending up to 1870 m [1]. It has greatly been considered that many species that were previously considered under this genus in family Splachnaceae were amalgamation of many taxonomic complexes which were subsequently transferred to many allied genera *Bryum, Syrrhopodon, Distichophyllum, Archidium,* and *Gymnostomiella*or reduced to synonyms [1, 3]. The genus *Splachnobryum* is characterised by small unbranched dioicous gametophytes, erect slender stem, leaves largely deformed, crowded towards apex, median large laminal cells, with a variable shape, smaller towards the margin and large towards the costa; pair of axillary hairs near leaf insertion, rhizoids in the lower part of stem; terminal clustered antheridia solitary-necked archegonia, while the sporophyte is solitary, with a thin, smooth seta and erect, cylindrical theca. In the current circumscription, the genus is represented in India by three species: *Splachnobryum aquaticum* C. Muell. (known from Uttarakhand and Gujarat); *Splachnobryum assamicum* Dixon (known from Uttarakhand and Assam); and *Splachnobryum obtusum* (Brid.) C. Muell. known from Gangetic South Bengal, Orissa, Western Himalaya, and Western Ghats [1, 4].

During identification of some of the recent moss collections, we came across an interesting specimen of *Splachnobryum* Muller. collected from a place between Tshoka and Phedang (3732 m), 27° 27′ 34.24″ N, 88° 10′

Nelumbo Vol 61 (1), (10-12) 2019
DOI : 10.20324/nelumbo/v61/2019/146248

ISSN (Print) : 0976-5069
ISSN (Online) : 2455-376X

A contribution to the flora of Kanchenjunga Biosphere Reserve, Sikkim, India

Subhajit Lahiri[1], Sudhansu SekharDash[2*], Asok Ghosh[3] and B.K. Sinha[2]

[1]Central National Herbarium, Botanical Survey of India, Howrah - 711103, India
[2]Botanical Survey of India, CGO Complex, Salt Lake, Kolkata - 700064, India
[3]UGC CAS Department of Botany, The University of Burdwan, Golapbag, Burdwan, West Bengal - 713104, India
*Corresponding author: ssdash2002@gmail.com

कांचनजंधा जीवमंडल रिजर्व, सिक्किम, भारत की वनस्पतिजात में संयोजन

सुभोजित लाहिड़ी, सुधांशु शेखर दाश, अशोक घोष, बी. के. सिन्हा

सारांश

कांचनजंधा जीवमंडल रिजर्व, सिक्किम में बाइस पादप जातियों का संयोजन हुआ है । इसके अतिरिक्त सिक्किम हिमालय क्षेत्र से प्रथम बार रूबस लासियोस्टाइलस फोके यहां प्रतिवेदित किया गया है । सरल अभिनिर्धारण के लिए प्रत्येक जाति के पुष्पण अवधि व पारिस्थितिकी पर एक विस्तृत विवरण व जानकारी प्रदान की गई है ।

ABSTRACT

Twenty two species reported here as addition to the Flora of Kanchenjunga Biosphere Reserve, Sikkim. Besides *Rubus lasiostylus* Focke reported here for the first time from Sikkim Himalaya. A comprehensive description, information on phenology and ecology of each of the species has been provided here for easy identification.

Keywords: Floristic Diversity, KBR, New Additions, Sikkim

INTRODUCTION

The Kanchenjunga Biosphere Reserve (KBR) is located in West and North district of Sikkim between 27°15′-27°57′N latitude and 88°02′-88°40′E longitude. The biosphere reserve comprises an area of 2619.92 sq. km of which the core zone is about 1784 sq. km and the buffer zone is 835.92 sq. km. Due to its great biodiversity along with multi-ethnic culture, UNESCO acknowledged this biosphere reserve as World Heritage Site in the year 2018. The biosphere reserve falls within the Himalaya global biodiversity hotspot and shows an unrivaled range of sub-tropical to alpine ecosystems. Khangchendzonga Biosphere Reserve is covers 25% of the State of Sikkim, recognized as one of India's most noteworthy biodiversity concentrations. Maity & al., (2018) enumerated 1584 species of flowering plants from the area while dealing the Flora of Kanchenjunga Biosphere Reserve. However, certain parts of the KBR are yet to be explored and documented. Recently, during our visit to KBR in connection with setting up permanent plots under the project "Biodiversity Assessment through Long-term Monitoring Plots in Indian Himalayan Landscape" for monitoring of plant diversity change in the Dzongri-Gocha La area, we have collected a total of 400 plant specimens. Interestingly, 22 species belonging to 13

Received: 09.09.17 Accepted: 28.06.18 Date of Publication: 31.07.18

RHEEDEA
Journal of the Indian Association for Angiosperm Taxonomy

RESEARCH ARTICLE

Vol. 30(2): 286–292 (2020)
ISSN: 0971-2313 (Print edition)
ISSN: 2582-2438 (Online edition)
https://dx.doi.org/10.22244/rheedea.2020.30.02.05

Notes on two lesser known *Codonopsis* (Campanulaceae) from eastern Himalaya, India

Dash S.S.[1]*, Lahiri S.[2], Ghosh A.[3] & B.K. Sinha[1]

[1]Botanical Survey of India, CGO Complex, Salt Lake, Kolkata, West Bengal – 700 064, India
[2]Central National Herbarium, Botanical Survey of India, Howrah, West Bengal – 711 103, India
[3]UGC CAS Department of Botany, The University of Burdwan, Golapbag, Burdwan, West Bengal – 713 104, India
*E-mail: ssdash2002@gmail.com

Abstract: Two lesser known species of *Codonopsis* Wall. (Campanulaceae), *viz*. *C. benthamii* Hook.f. & Thomson and *C. subsimplex* Hook.f. & Thomson were collected after a lapse of more than a century from Sikkim Himalaya, India. The authors evaluated the phenology of the above species in the last hundred years which shows a significance alteration. In this paper, information about the taxonomy, habitat, distribution and phenology are discussed along with photographic images.

Keywords: *Codonopsis benthamii*, *C. subsimplex*, Phenology, Rediscovery, Sikkim, Taxonomy.

Introduction

The genus *Codonopsis* Wall. (Campanulaceae) is widely distributed in temperate to alpine region of Asia and Europe and includes about 64 species (Hong, 2015b). The genus includes perennial erect herbs or herbaceous twiners characterized by solitary and large campanulate flowers, generally with a peculiar foul odour (Haridasan & Mukherjee, 1996; Hong, 2015a; Mabberley, 2017). Clarke (1881) reported 10 species of *Codonopsis* from the then British India under two sections: *Campanumoea* Blume and *Cyclocodon* Griff. Recent field studies in Himalayas (Dash, 2018), revealed the occurrence of 15 species in India, of which *C. ovata* Benth., *C. clematidea* (Schrenk) C.B.Clarke and *C. rotundifolia* Benth. show an extended distribution in Western Himalaya, while the rest 12 species are restricted to eastern Himalaya.

Received: 14.09.2019; *Revised & Accepted*: 10.04.2020
Published Online: 30.06.2020

During field explorations in the East district of Sikkim, two species of *Codonopsis* were came across in Kyongnosla Alpine Sanctuary. After consulting the relevant literature (Hooker & Thomson, 1858; Clarke, 1881; Komarov, 1908; Hong *et al*., 2011; Hong, 2015a), type specimens, protologue and other specimens housed in different herbaria (A, ARUN, ASSAM, BSHC, CAL, DD, E, GH, K, LWG, PE), they were identified as *C. benthamii* Hook.f. & Thomson and *C. subsimplex* Hook.f. & Thomson. *C. benthamii* is rediscovered after 110 years while *C. subsimplex* after a gap of 50 years after their last collection in India.

Material and Methods

Flowering specimens were collected from Kyongnosla Alpine Sanctuary (East district, Sikkim, India) and voucher specimens were prepared as per standard procedure (Jain & Rao, 1977). Photographs were taken in field with a Sony HX 400V camera. The micromorphological characters of flowers were studied using stereo-zoom microscope (Olympus SZ61, Japan). Detailed description was based on field observations and herbarium specimens (A, ARUN, ASSAM, BSHC, CAL, DD, E, GH, K and LWG; acronyms as per Thiers, 2020 continuously updated). To evaluate the change in flowering time of these two species in the last hundred years, Primack *et al*. (2004) was followed.

Taxonomic treatment

Codonopsis benthamii Hook.f. & Thomson, J. Proc. Linn. Soc., Bot. 2: 14. 1857. *Lectotype*

Phytotaxa 674 (3): 275–280
https://www.mapress.com/pt/

Article

ISSN 1179-3155 (print edition)
PHYTOTAXA
ISSN 1179-3163 (online edition)

https://doi.org/10.11646/phytotaxa.674.3.4

Rediscovery of *Erigeron jaeschkei* (Asteraceae: Astereae: Conyzinae) and notes on its correct protologue and typification

KASTURI CHAKRABORTY[1,3], BANDANA BHATTACHARJEE[1,4], ASOK GHOSH[2,5] & AVISHEK BHATTACHARJEE[1,6,*]

[1]*Central National Herbarium, Botanical Survey of India, P.O. – B. Garden, Howrah – 711 103, West Bengal, INDIA*
[2]*Taxonomy and Biosystematics Laboratory, Department of Botany (DST-FIST sponsored), The University of Burdwan, Barddhaman-713104, West Bengal, INDIA*
[3] kasturi.rimi@gmail.com; https://orcid.org/0000-0001-9221-4310
[4] bandanabsi@rediffmail.com; https://orcid.org/0009-0001-0196-5678
[5] aghosh@bot.buruniv.ac.in; https://orcid.org/0000-0003-0928-1534
[6] aviorch@gmail.com; https://orcid.org/0000-0003-4574-3804
**Corresponding author:* aviorch@gmail.com

Abstract

Erigeron jaeschkei (Asteraceae: Astereae: Conyzinae) has been rediscovered after more than 15 decades from the Spiti valley of Himachal Pradesh, India. The protologue of this species name had been cited wrongly in several published literature sources and online databases, which is corrected in the present treatment. Apart from a brief diagnosis and types, no detailed modern description, illustration or photograph was available for this species. Therefore, a detailed description and a colour photo-plate based on our collection are provided for the first time to facilitate identification of this less-known species. A lectotype is also designated from the original collection by Dr. Jäschke.

Key words: Compositae, endemic, Falori Pass, Jäschke, lectotype, recollection

Introduction

The genus *Erigeron* Linnaeus (1753: 863) belongs to the subtribe Conyzinae under the tribe Astereae of the family Asteraceae / Compositae (Nesom 2008). The genus has *c.* 390 species (Nesom 2006) with a cosmopolitan distribution, and is represented by 21 species with 2 varieties in India (Karthikeyan *et al.* 2020). In connection with a field survey (in search for species of *Aster* Linnaeus (1753: 872) and their look-alike taxa) under SERB-CRG project (CRG/2021/000790), few specimens of an uncertain species of *Erigeron* were collected from two locations in Spiti Valley, Lahaul and Spiti District of Himachal Pradesh, India. The species was later identified as *E. jaeschkei* Vierhapper (1926: 12) based on our detailed study of specimens, consultation of the protologue and original materials of *E. jaeschkei*, and also by our morphological comparisons with other related species of *Erigeron*.

While describing *E. himalajensis* Vierhapper (1906: 491) as a new species, Friedrich (Karl Max) Vierhapper compared it with another, yet unnamed species by stating "Am Faloripaß hat Jaeschke noch eine andere (einjährige?) Art gesammelt (Faloripaß, Jaeschke: hb. U. V.), welche vielleicht ebenfalls den *Pleiocephali* angehört. Sie unterscheidet sich von *E. Himalajensis* durch dünnere Stengel, viel länger gestielte Basalblätter mit bedeutend breiterer, breit elliptischer oder verkehrt-eiförmiger Lamina, breitere Stengelblätter und insbesondere durch das ziemlich gleichmäßige, abstehend dicht-haarige, nicht drüsige Indument der Vegetationsorgane". Later, Vierhapper validly published a name of that unnamed species as *E. jaeschkei* Vierhapper (1926: 12) by providing a diagnosis; he also cited specimens (syntypes) and indicated the herbarium where the specimens were preserved.

Erigeron jaeschkei is endemic to India with a very restricted distribution in Himachal Pradesh. The species was described based on the specimens collected by Heinrich August Jäschke from Falori Pass, Lahaul, Himachal Pradesh, either between 1856–1864 or 1865–1868. Though the year of collection is neither mentioned in the protologue, nor in the label data of Jäschke's collection, it has been traced out on a study of Jäschke's biography published by Bray (1983).

Accepted by Alexander Sennikov: 11 Nov. 2024; published: 28 Nov. 2024

Nelumbo Vol 64 (1): (29-55) 2022
DOI: 10.20324/nelumbo/v64/2022/170943

ISSN (Print) : 0976-5069
ISSN (Online) : 2455-376X

An annotated checklist to the alpine and sub alpine Flowering plant diversity of Dzongri-Goecha La area, West Sikkim, India

Subhajit Lahiri[1], Sudhansu Sekhar Dash*[2] and Asok Ghosh[3]

[1]Central National Herbarium, Botanical Survey of India, Howrah 711103, West Bengal, India.
[2]Botanical Survey of India, 3rd MSO Building, 6th Floor, CGO Complex, DF Block, Sector-1, Salt Lake, West Bengal 700064, India.
[3]Department of Botany, University of Burdwan, Burdwan 713104, West Bengal, India.
*Corresponding author: ssdash2002@gmail.com

भारत में पश्चिम सिक्किम के जोंगरी-गोएचा ला क्षेत्र के पुष्पीय पादप विविधता संबंधी अल्पाइन तथा सब-अल्पाइन का एक विस्तृत चेकलिस्ट

सुभाजित लाहिड़ी, सुधांसु सेखर दाश तथा असोक घोष

सारांश

पश्चिम सिक्किम के जोंगरी-गोएचा ला क्षेत्र से कुल 254 पादप जातियों को संग्रहित किया गया है जो 151 वंशों तथा 47 कुलों से संबंधित हैं। अध्ययन क्षेत्र में शामिल कुल वंशों के 52.75% में प्रथम दस कुलों की बहुलता है तथा 37. 74 % में प्रथम दस वंशों की बहुलता है। अध्ययन के दौरान इस क्षेत्र के लिए 22 नए टैक्सा ज्ञात किए गए हैं।

ABSTRACT

A total of 254 plant species belonging to 151 genera and 47 families were collected from alpine and subalpine regions of Dzongri Goecha La area. Of the total species collected, the first ten dominating family contributed more than 52.75% while the first ten dominating genera contributed 37.74 % of total genera of the studied area. 22 taxa have been reported new to region during the study.

Keywords: Checklist, flora, vascular plants, Khangchendzonga, Biosphere Reserve. Alpine plants

INTRODUCTION

One of the prerequisites for biodiversity assessments and strategy for plant conservation is to the document the plant diversity of a region. The Himalaya has a remarkable range of biodiversity in its diverse habitats and ecosystems. The distribution of plant species in fragile alpine ecosystems is dynamic and need to be recorded at different intervals to understand the pattern and potential migration of plant species to different habitats. Keeping in this in mind, this study has been carried out in the alpine and subalpine region of Dzongri-Goecha La of West Sikkim to document the plants occurring on the region. Exploration was done between July 2016 to September 2020 for collection of plant specimens along different altitudinal gradient towards the partial fulfilment of the objective of the project entitled "*Biodiversity Assessment through Long-term Monitoring Plots in Indian Himalayan Landscape*" under National Mission of Himalayan Studies.

The Dzongri-Goecha La area is well-known for its pristine natural landscapes and mesmeric meadows of alpine flowers. This is also one of the highest fragile ecosystems listed under UNESCO World Heritage Site *i.e.*, Khangchendzonga Biosphere Reserve (KBR). The vegetation of the area comprises of subalpine *Rhododendron* Forest, alpine scrubs and meadows. Though includes a smaller area, but due to high variations in elevation from 3000–4800 m asl. plant diversity of the area is remarkably high and unique. Recent study shows that, the biodiversity of this region under threat due to various factors such as heavy grazing, over exploitation of plant resources and high influx of tourist etc.

MATERIAL AND METHODS

The Dzongri Goecha La trekking starts from Yuksom, situated at an elevation of 1760 m asl. and ends at Goecha

Submitted : 18.07.2022 Accepted : 28.07.2022 Date of Publication 31.07.2022