



Present status of Liverworts and Hornworts in India

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Abstract: Recent addition of several taxa of liverworts in Indian flora and a few taxa being synonymized has resulted in a total of 953 taxa of liverworts and hornworts in India.

Keywords: Hornworts; India; Liverworts; Present status; Synonym

Introduction

India has a rich biodiversity of liverworts or Marchantiophyta and hornworts or Anthocerotophyta. Singh *et al.* (2016), in their checklist, recognized a total of 930 taxa in India. Of these, 834 species, 16 subspecies, 39 varieties, and two forma belong to 134 genera in 56 families of liverworts and 39 species to six genera in three families of hornworts. However, to date, from 2016, one genus and 28 species and infraspecific taxa of liverworts have been added to the Indian bryoflora, six taxa have been synonymized while one species, *Plagiochila cuspidata* Steph., previously synonymised under *Plagiochila parviflora* Lindenb. has been reinstated, resulting in 953 taxa, belonging to 141 genera, 59 families, 17 orders, and four classes from two phyla. Of these, 854 species, 17 subspecies, 41 varieties, and two forma belongs to 135 genera in 56 families of liverworts and 39 species representing six genera in three families of hornworts (Pócs *et al.*, 2015; Promma & Chantanaorrapint, 2015; Rawat *et al.*, 2016; Singh *et al.*, 2016; Kumar & Singh, 2017; Kushwaha *et al.*, 2017;

Majumdar & Dey, 2017; Manju *et al.*, 2017; Singh Deo & Singh, 2017; Singh & Kumar, 2017; Daniels *et al.*, 2018; Singh & Majumdar, 2018; Singh *et al.*, 2018; Singh, 2018; Singh & Singh, 2018; Asthana *et al.*, 2019; Asthana & Srivastava, 2019; Dey & Majumdar, 2019; Cargill *et al.*, 2019; Verma *et al.*, 2019; Majumdar & Long, 2020; Singh *et al.*, 2020a, b; Asthana & Srivastava, 2021; Majumdar & Dey, 2021; Majumdar, 2021).

In India, till 2016, only one genus (*Sewardiella* Kashyap) and 200 species and infraspecific taxa within 52 genera and 32 families were endemic (Singh *et al.*, 2016). Presently, with the addition of a new genus [*Ramudaria* (D.K.Singh, S.Majumdar & D.Singh) D.K.Singh, S.Majumdar, D.Singh & Molinari] from India and other new taxa, the number increased to two endemic genera and 215 endemic species and infraspecific taxa, belonging to 53 genera and 32 families from India (Singh *et al.*, 2016; Kushwaha *et al.*, 2017; Singh *et al.*, 2018, 2020b; Singh, 2018; Singh & Singh, 2018; Asthana *et al.*, 2019; Asthana & Srivastava, 2019; Cargill *et al.*, 2019; Verma *et al.*, 2019). The details are as follows:-

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Table 1: Alphabetic lists of taxa added to Indian bryoflora between 2016–2020

S. No.	Taxa	Family	Reference
1.	<i>Acrolejeunea securifolia</i> (Nees) Steph. subsp. <i>hartmannii</i> (Steph.) Gradst.	Lejeuneaceae	Daniels <i>et al.</i> , 2018
2.	<i>Anastrophyllum ellipticum</i> Inoue	Anastrophyllaceae	Majumdar & Long, 2020
3.	<i>Cheilolejeunea vittata</i> (Steph. ex G.Hoffm.) R.M.Schust. & Kachroo	Lejeuneaceae	Kumar & Singh, 2017
4.	<i>Cololejeunea ghatensis</i> G.Asthana & A.Srivast.	Lejeuneaceae	Asthana & Srivastava, 2019
5.	<i>Cololejeunea khawanglungensis</i> Sushil K.Singh	Lejeuneaceae	Singh, 2018
6.	<i>Cololejeunea lobulopapillata</i> A.K.Asthana, V.Sahu & Day.Gupta	Lejeuneaceae	Asthana <i>et al.</i> , 2019
7.	<i>Cololejeunea manilalia</i> Manju, Chandini & K.P.Rajesh	Lejeuneaceae	Manju <i>et al.</i> , 2017
8.	<i>Cololejeunea mehrana</i> G.Asthana & A.Srivast.	Lejeuneaceae	Asthana & Srivastava, 2019
9.	<i>Cololejeunea microscopica</i> (Taylor) Schiffn. var. <i>microscopica</i>	Lejeuneaceae	Singh & Kumar, 2017
10.	<i>Cololejeunea murlenensis</i> Sushil K.Singh	Lejeuneaceae	Singh, 2018
11.	<i>Colura corynophora</i> (Nees, Lindenb. & Gottsche) Trevis.	Lejeuneaceae	Singh <i>et al.</i> , 2020
12.	<i>Drepanolejeunea mizoramensis</i> Sushil K.Singh	Lejeuneaceae	Singh, 2018
13.	<i>Gymnomitrium crenatilobum</i> Grolle	Gymnomitriaceae	Rawat <i>et al.</i> , 2016
14.	<i>Lejeunea asthanae</i> P.K.Verma, K.K.Rawat & A.Alam	Lejeuneaceae	Verma <i>et al.</i> , 2019
15.	<i>Lejeunea bukpuiensis</i> Sushil K.Singh	Lejeuneaceae	Singh, 2018
16.	<i>Lejeunea eifrigii</i> Mizut. var. <i>indica</i> Sushil K.Singh	Lejeuneaceae	Singh, 2018
17.	<i>Lejeunea kolasibensis</i> Sushil K.Singh	Lejeuneaceae	Singh, 2018
18.	<i>Leptolejeunea mizoramensis</i> Sushil K.Singh	Lejeuneaceae	Singh, 2018
19.	<i>Lopholejeunea borneensis</i> (Steph.) Verd.	Lejeuneaceae	Daniels <i>et al.</i> , 2018
20.	<i>Lopholejeunea sikkimensis</i> Steph. var. <i>kumaunii</i> B.K.Kushwaha, S.N.Srivast., M.Rai & Prateek Srivast.	Lejeuneaceae	Kushwaha <i>et al.</i> , 2017
21.	<i>Metzgeria mizoramensis</i> Sushil K.Singh & D.Singh	Metzgeriaceae	Singh & Singh, 2018
22.	<i>Radula campanigera</i> Mont.	Radulaceae	Singh Deo & Singh, 2017
23.	<i>Radula cavifolia</i> Hampe ex Gottsche, Lindenb. & Nees	Radulaceae	Singh & Majumdar, 2018
24.	<i>Radula stenocalyx</i> Mont.	Radulaceae	Promma & Chantanaorrapint, 2015
25.	<i>Ramudaria lamellicaulis</i> (D.K.Singh, S.Majumdar & D.Singh) D.K.Singh, S.Majumdar, D.Singh & Molinari	Lophocoleaceae	Singh <i>et al.</i> , 2018, 2020b
26.	<i>Riccia boliviensis</i> Jovet-Ast	Ricciaceae	Asthana & Srivastava, 2021
27.	<i>Riccia sahyadrica</i> Manju & Cargill	Ricciaceae	Cargill <i>et al.</i> , 2019
28.	<i>Spruceanthus semirepandus</i> (Nees) Verd. var. <i>indicus</i> Sushil K.Singh	Lejeuneaceae	Singh, 2018

Table 2: Alphabetic lists of taxa synonymized

S. No.	Taxa	Family	Reference
1.	<i>Acrolejeunea meghalayensis</i> (Ajit P.Singh & Vir.Nath) J.Wang bis & Gradst. = <i>Acrolejeunea recurvata</i> Gradst.	Lejeuneaceae	Singh & Nath, 2007; Wang <i>et al.</i> , 2014; Majumdar & Dey, 2017
2.	<i>Anastrophyllum lignicola</i> D.B.Schill & D.G.Long = <i>Anastrophyllum ellipticum</i> Inoue	Anastrophyllaceae	Majumdar & Long, 2020
3.	<i>Anastrophyllum minutum</i> (Schreb.) R.M.Schust. var. <i>himalayanum</i> S.Srivast., S.C.Srivast. & K.K.Rawat = <i>Anastrophyllum ellipticum</i> Inoue	Anastrophyllaceae	Majumdar & Long, 2020
4.	<i>Cololejeunea tixieriana</i> M.Dey, D.Singh & D.K.Singh = <i>Cololejeunea trichomanis</i> (Gottsche) Steph.	Lejeuneaceae	Dey <i>et al.</i> , 2008; Pócs <i>et al.</i> , 2015
5.	<i>Cololejeunea manilaliana</i> "manilalia" Manju, Chandini & K.P.Rajesh = <i>Cololejeunea nilgiriensis</i> G.Asthana & S.C.Srivast.	Lejeuneaceae	Manju <i>et al.</i> , 2017; Dey & Majumdar, 2019
6.	<i>Drepanolejeunea mawtmiana</i> Ajit P.Singh & Vir.Nath = <i>Drepanolejeunea herzogii</i> R.-L.Zhu & M.L.So	Lejeuneaceae	Singh & Nath, 2007; Majumdar & Dey, 2021

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