



a student of bryology

Singh S.K.

Admired and inspired with Great contribution

of

R.M. Schuster

F. Stephani

R. Grolle

Tamas Pocs



Presentation on Scientific contribution made between 2001 -2017



Ph D. Thesis: 2005 (under supervisions of Prof. R.D. Gaur & Dr. D.K. Singh)

Name of University : H. N. B. Garhwal Univ. Uttarakhand

Title of Thesis: Morpho-taxonomic studies on hepaticae (bryophyta) of the protected areas of Himachal Pradesh - with special reference to National Parks)

Name of the Project: All India Co-ordinated project on Taxonomy (AICOPTAX) funded by MoEF CC. Govt of India: JRF (from March 2001 - 2003) and SRF (March 2003 - March 2008)



Annual Action Plan (April 2008-till date)

1. Bryoflora (Hepaticae & Anthocerotae) of Mizoram
(April 2008 – March 2014
extended by March 2017)

Field exploration: Five extensive tour to different places of Mizoram
1800 field numbers comprising more than **7000** samples were collected.

Identification: All are identified, belonging to **290 species**

Taxonomic description completed: 290 species

Figure/ plates prepared : 300 (three Hundreds)



2. Taxonomic revision of genus *Riccia* (Marchantiophyta) in India

(October 2014 – March 2019)

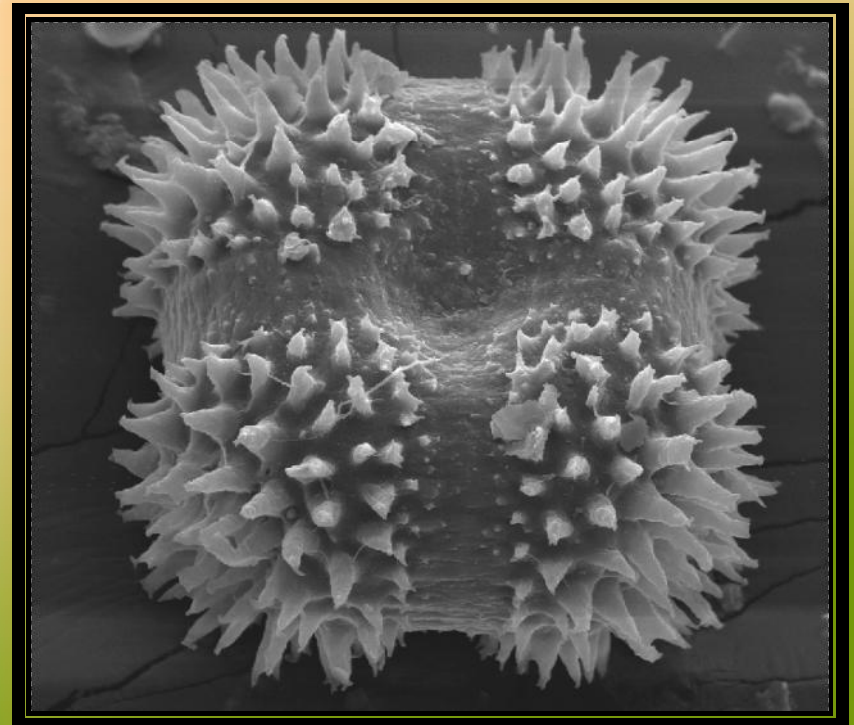
Survey & Explorations: One extensive tour to Karnataka, Maharashtra (08th -23rd October, 2014) collected **40 samples of *Riccia*** and additionally collected 301 samples of liverwort and hornworts.

In Addition **14 other one day field trips** undertaken for different places of Meghalaya, Assam, Manipur, and collected **27** samples of *Riccia* and nearly 1200 samples of other liverworts and hornworts

Identification: Identification of 56 samples of *Riccia* completed (including collection from Jharkhand, Nagaland, Tripura, Assam, Meghalaya, Karnataka, Maharashtra, Punjab) either collected by me or Shashi Kumar (SPF) or donated by other researchers.

Nomenclature : Checked thoroughly and corrected the nomenclature of 22 species of *Riccia* known from India and protologue of all collected.

Taxonomic description & Illustration: 14 species completed in all respect. Remaining work will be completed in due course.



3. Flora of India project:

Taxonomic Studies on Lejeuneaceae

Schizostipae (Mrachantiophyta) in Northeast India including Sikkim (20th January 2014- 19th January 2019) (Supervision work)

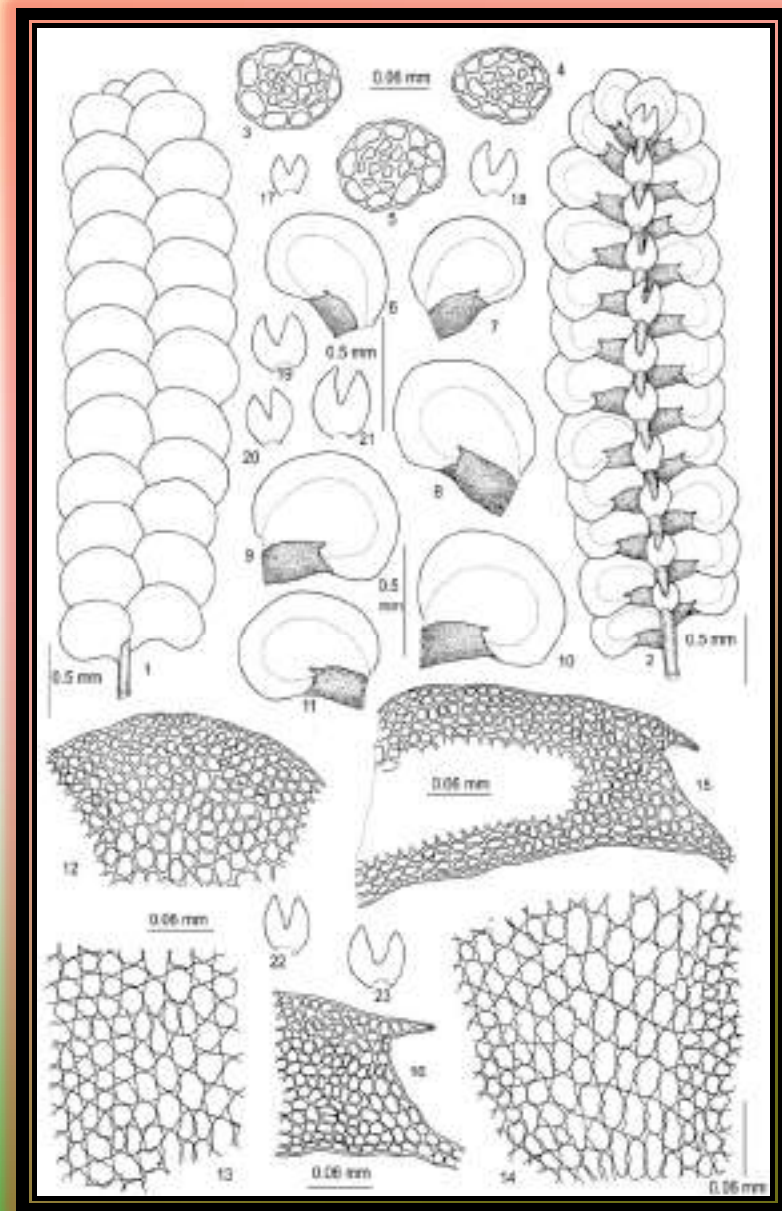
No. of field tours: - 13 (3 Extensive collections to Tripura, Manipur and Nagaland and 14 short one day tour to different parts of Meghalaya)

Sample collected: 960 sample of Lejeuneaceae (Schizostipaeae) from these areas

Identification : 317 samples belonging to 53 species.

Taxonomic description completed: 53 species

Camera-lucida illustration prepared: - 53 species and 62 plates



Additional Collection/ Identification:

Assam: 300 samples belonging to 107 species (incl. 3 new to India, 3 new to mainland, 12 *new to* Eastern Himalaya, 20 species new to Assam)

Meghalaya: 450 samples of liverworts identified.

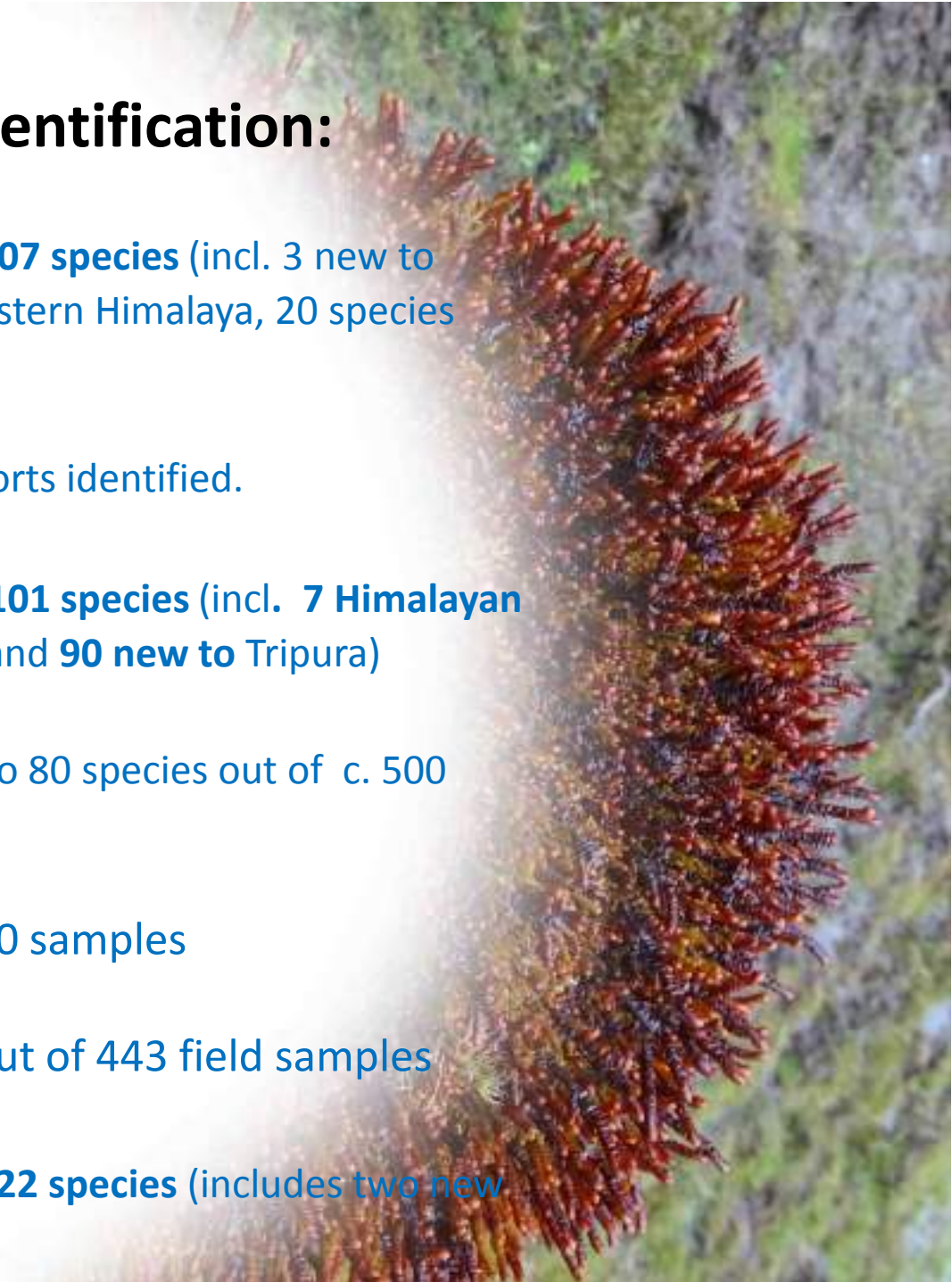
Tripura: 480 samples belonging to 101 species (incl. 7 Himalayan new records, 3 New to East Himalaya and 90 new to Tripura)

Nagaland: 120 samples belonging to 80 species out of c. 500 samples.

Manipur : 130 samples out of 460 samples

Arunachal Pradesh: 12 samples out of 443 field samples

Hawaii : 14 samples belonging to 22 species (includes two new records for Hawaiian Island)



Refree/Reveiwer/ Editorial board member

1. **Antolian bryology**
2. Bangladesh Journal of Plant Taxonomy
3. Journal of Bryology
4. **Journal of Ecology and Environmental Sciences**
5. **Keanean Journal of Science**
6. Nelumbo
7. National Academy Science Letters

Thesis / project evaluation:

1. Ruhelkhand Univ., Barielly (2 thesis),
2. Nagaland University (one thesis),
3. Punjab University (one thesis) also conducted Viva-voce
4. Vanasthali Vidyapith (one synopsis)
5. Uttar Pradesh Science Council and Technology (1 funded project and 2 progress report)
6. Biodiversity Board of Meghalaya (Technical reports also served as co-opted member of the board)

Invited talks

- ✓ **An appraisal of the genus *Riccia* in India with a note on diversity and distribution of species** in Conference & Workshop on “Monitoring of Metals and Gases in Plants with Special Reference to Bryophyte Physiology & Climate Change” 17th-20th December, 2012 at Bareilly College, Bareilly, U.P.
- ✓ **Handling of Bryophytes** - With special reference to Marchantiophyta. National Workshop on Bryophyte” held February (22nd-23rd) 2013 at Jammu University, Jammu & Kashmir.
- ✓ **Thallose liverwort** - a overview National Workshop on Bryophyte” held February (22nd-23rd) 2013 at Jammu University, Jammu & Kashmir.
- ✓ **Invasive species and their control -with special reference to Meghalaya**, delivered at State level Workshop "Control and Eradication of Invasive Species with special emphasis to Meghalaya" Organized by Forest Department, Meghalaya on 26th July 2013.

Other symposia / workshop attended

Participated in National Seminar on Cryptogams (28-29 September) organized by NBRI, Lucknow and made two presentation (1 poster & 1 oral):

1. Contributions to the Hepaticae and Anthocerotae of Mizoram X. Marchantiales (oral, S.K.Singh);
2. Two new *Drepanolejeunea* [marchantiophyta: lejeuneaceae] added to bryoflora of Meghalaya (Poster by Shashi Kumar & S.K.Singh).



Radio talk:

Participated in a programme “Prakiriti Pukar” hosted by All India Radio Shillong for publicizing biodiversity in the country”

1. 10 minutes programme on orchids, broadcasted on 26.06.16 at 7.30am on FM 100.1.
2. The 2nd part on purbottar bharat ki vanaspatiya, broadcast on 3rd July 2016 at 7.30am on FM 100.1.

Other presentations/ talk

1. Delivered one hour lecture on **Biodiversity of India- an Overview** at BSI, ERC on International Biodiversity Day (22nd May 2013).
2. Delivered another lecture "**Botanical Nomenclature - A historical perspectives and insights of various names used in plant systematics**" at BSI ERC Shillong on 5th August 2013.

Technical session Chaired

- 1) Chaired a Technical session in National Workshop on Bryophyte at Jammu on 23rd Feb 2013.
- 2) Chaired a Technical Session in State Level Consultative Workshop on Conservation & Promotion of Medicinal & Aromatic Plants on 26th -27th February 2014 Organised by BRDC & MBDA Meghalaya

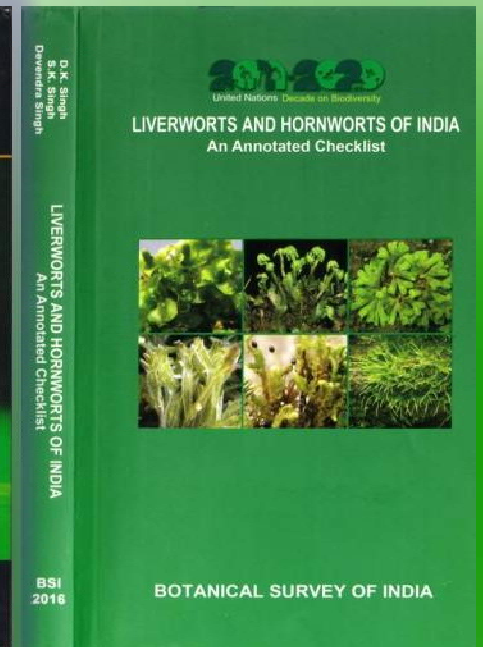
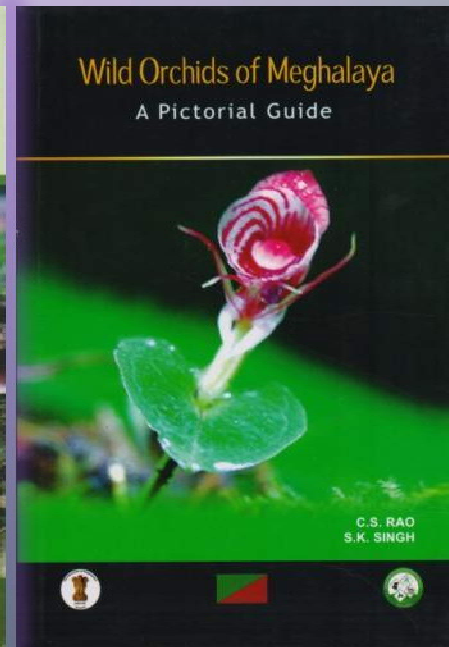
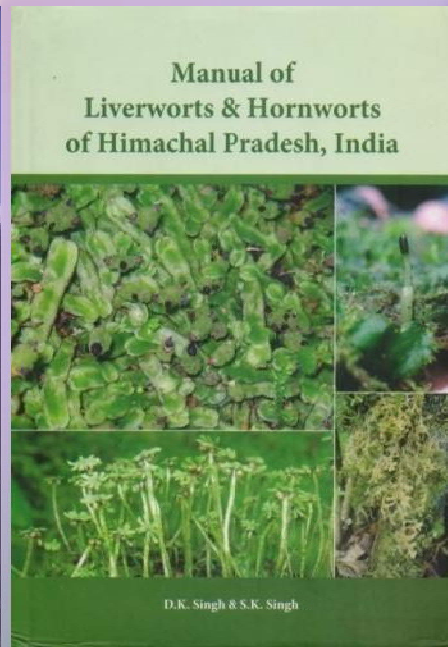
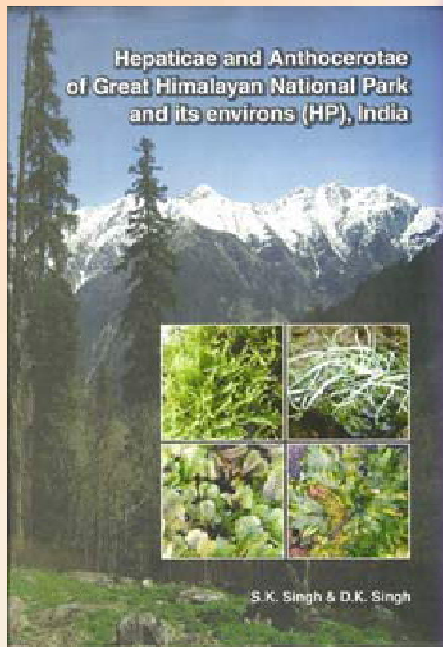
Administrative work:

1. **Head of the office:** Worked as H.O.O. in the absence of Regular H.O.O. whenever required (in 2014 4month at a time)
2. **DDO:** As and when required.
3. **In-charge Estate matters:** looked after the day to day work of Estate matters like CPWD works, transit accommodation etc from 2008 -2010.
4. **In-charge Hindi Matters:** Assisted Head of the Office in the work related to Hindi Matters like arrangement of Quarterly Departmental Rajbhasa Karyanwyan Samiti meeting, Hindi Quarterly Report and other work whenever required.
5. **In-charge New Pension Scheme:** Assisted Head of the Office for all the correspondences and routine work Preparation of FPU, FVU, Uploading at the CRA, NSDL and generating SCF and uploading Bank details at NSDL etc.
6. **In-charge Library Matters:** Assisted Head of the Office for the work related to Library of this office.
7. **In-charge CGHS Matters:** Assisted Head of the Office for all the correspondences and daily routine work related to CGHS work.
8. **In-charge Technical Matters:** Assisted Head of Office for Planning, preparation of Technical matters and looked after the issues related to computer, Camera, GPS Microscopes SEM Installation etc.
9. **Purchase Committee:** Served as Chairman Purchase committee till 2013 (since 2013 - till date, member purchase committee): Helped in Scrutinizing and monitoring correspondences related to purchase of articles at ERC, BSI and advised H.O.O. time to time in these matters.
10. **Miscellaneous:** Worked as Chairman for the committee looking after the sexual Harassment of Women's employees at work places and member of Canteen Committee.
11. **Also performed all the duties as and when required by Head of Office.**

PUBLICATIONS

BOOKS

1. **Singh, S. K.** and D.K. Singh. 2009. Hepaticae and Anthocerotae of Great Himalayan National Park and its environs (H.P.), India. BSI, Kolkata. (64 Citations)
2. Singh D.K. and **S. K. Singh** 2015. Manual of liverworts and hornworts of Himachal Pradesh, India Bishen Singh Mahendrapal Singh, Dehradun.
3. Rao, C.S. and **S. K. Singh** 2015. Wild Orchids Meghalaya- a pictorial guide. State Biodiversity board of Meghalaya, Shillong.
4. D.K. Singh, **S.K. Singh**, D. Singh 2016. Liverworts and hornworts of India : an annotated checklist. BSI, Kolkata.



Research papers/articles published : 138

Indian Journals (102)

Annals of Forestry (2)
Bull. Arunachal Forest Research (2)
Nelumbo (10+3) incl. Bulletin
Current Science (1)
ENVIS New Letters (7)
Geophytology (9)
Indian Journal of Forestry (7)
J. Economic Taxonomic Botany (3)
J. Non-Timber Forest Product (2)
Journal of Threatend Taxa (1)
Keanean J. Science (20)
NeBIO (3)
Phytotaxonomy (3)
Vanaspati Vani (29)

Foreign Journals (33 nos.)

Acta Bot. Hungarica (4)
Annales Botanici Fennici (1)
Archives of Bryology (3)
Bangladesh Journal of Plant Taxonomy (1)
Cryptogamie Bryologie (3)
Int. J. Sust. Water Environ. Syst. (1)
Journal of Bryology (2)
Lindbergia (1)
Phalaenopsis (1)
Phytotaxa (5)
Richardiana (3)
Taiwania (4)
Telopia (2)
The MIOS Journal (1)
Tropical Bryology (1)

Proccedings (3): 2 articles in world conference of Bryology & 1 in PCST
Proc. and Brochure of BSI ERC

Best 10 published articles

1. **SINGH S.K.** AND D.K. SINGH. 2007. Some new and noteworthy records of some Hepaticae and Anthocerotae from Western Himalaya, India. *Cryptogamie Bryol.* 28: 253-265.
2. SINGH D. K. AND **S.K. SINGH.** 2008. Scanning Electron Microscopic Studies on Sporoderm of Some Indian Liverworts and Hornworts. In: H. Mohamed, B.B. Baki, A. Nasrulhaq-Boyce & P.K.Y. Lee (eds.) *Bryology in the New Millennium.* Kuala Lumpur: University of Malaya, pp. 291-317.
3. **SINGH S.K.,** A. K. BAG AND S.G. BHATTACHARAYA. 2010. *Riccia* (Hepaticae: Ricciaceae) of West Bengal. *Taiwania* 55(2): 99-109.
4. **SINGH S.K.** AND D.K. SINGH. 2010. A catalogue of the liverworts and hornworts of Himachal Pradesh, India. *Arch. Bryol.* 62: 1-13.
5. **SINGH, S.K.** AND H.A. BARBHUIYA. 2012. Compendium to Marchantiophyta and Anthocerotophyta of Assam, India. *Arch. Bryol.* 149: 1-30.
6. **SINGH, S.K.** 2012. A checklist of Liverworts, hornworts and mosses of Uttar Pradesh. *Geophytology* 42(2): 163-167.
7. **SINGH, S.K.** 2013. New combinations in *Lejeunea* with a new name to *Otigoniolejeunea indica*. *Phytotaxa* 96 (1): 63–64.
8. **SINGH, S.K.** AND T. POCS. 2016. Reinstatement of *Cololejeunea indica* Pandé & Misra, a name previously synonymous with *C. spinosa* (Horik.) Pandé & Misra. *Cryptog. Bryol.* 37(1):27-32.
9. **SINGH, S.K.** AND SHASHI KUMAR. 2016. A preliminary study on liverworts and hornworts of Tripura, North-East India. *Nelumbo* 58: 130-151.
10. **SINGH, S.K.** AND TAMÁS PÓCS. 2016. Present status of genus *Taxilejeunea* [Lejeuneaceae: Marchantiophyta] in India. *Phytotaxa* 263 (1): 73-76.

NEW SPECIES

1. *Cephalozia schusteri* Sushil K. Singh & D.K.Singh
2. *Jungermannia indrodayana* Sushil K. Singh & D.K.Singh
3. *Frullania larjiana* Sushil K. Singh & D.K.Singh
4. *Lopholejeunea sikkimensis* var. *tenuicostata* Sushil K. Singh & D.K.Singh
5. *Lejeunea mizoramensis* Sushil K.Singh
6. *Rectolejeunea devendrae* Sushil K.Singh
7. *Drepanolejeunea devendrae* Sushil K. Singh & M. Dey
8. *Frullania mizoramensis* Sushil K.Singh & Barbhuiya
9. *Frullania evelynae* S.Hatt. & Thaith. var. *devendrae* Sushil K.Singh & Barbhuiya
10. *Frullania evelynae* S.Hatt. & Thaith. var. *srivastavae* Sushil K. Singh & Barbhuiya
11. *Crepidium meghalayensis* M. Murugesan, Sushil K.Singh & A.A. Mao
12. *Hellenia meghalayensis* R. Kumar, Sushil K. Singh & B.K. Sinha
13. *Hellenia paramjitii* R. Kumar, Sushil K. Singh & Sachin Sharma
14. *Zingiber meghalayense* Sushil K.Singh, R.Kumar & Mood
15. *Zingiber murlenica* Ram.Kumar, Sushil K.Singh & S.Sharma
16. *Zingiber mizoramensis* Ram.Kumar, Sushil K.Singh & S.Sharma
17. *Bulbophyllum chyrmangensis* D.Verma, S.Lavanaia & Sushil K.Singh
18. *Talerina*..... sp1 nov.
19. *Frullania*sp2 nov.
20. *Cololejeunea* sp1 nov.
21. *Cololejeunea* sp2 nov.
22. *Drepanolejeunea* sp1 nov.
23. *Lejeunea* sp1 nov.
24. *Lejeunea* sp2 nov.
25. *Lejeunea* sp3 nov.
26. *Leptolejeunea* sp1 nov.
27. *Spruceanthus* sp1 nov.
28. *Plagiochila* sp 1 nov.
29. *Plagiochila* sp2 nov.
30. *Riccia* sp 1 nov.



Reinstatement and rediscovery

1. *Cololejeunea indica* Pandé & Misra
2. *Isotachis indica* Mitt.
3. *Lejeunea obfusca* Mitt.
4. *Anthoceros macrosporus* Steph.
5. *Arundina graminifolia* var. *revoluta* (J.D.Hooker) A.L.Lamb
6. *Bulbophyllum picturatum* (G. Lodd.) Rchb.f.
7. *Thelypteris hirtisora* (C. Chr.) K. Iwats.
8. *Globba wardii* (B. L. Burtt & R. M. Sm.) K. J. Williams

New Combinations

1. *Lejeunea apiahyna* (Steph.) Sushil K. Singh
2. *Spruceanthus minutilobula* (Udar & U.S. Awasthi) Sushil K. Singh
3. *Lejeunea quinqueumbonata* Spruce var. *rotundata* (Herzog) Sushil K. Singh
4. *Lejeunea ghatensis* (Verma & Srivastava) Sushil K. Singh & Pócs,
5. *Lejeunea pfliedereri* Sushil K. Singh nom. nov.
6. *Lejeunea kudremukhensis* Sushil K. Singh & Pócs, nom. nov.
7. *Cheilolejeunea neesiana* Sushil K. Singh & Pócs, nom. & stat. nov.
8. *Lejeunea nilgiriensis* (P.K.Verma & S.C. Srivast.) Sushil K. Singh & Pócs
9. *Solenostoma pfliedereri* (Amakawa & Vana) Sushil K. Singh

New Synonyms proposed

1. *Taxilejeunea himalayensis* Herzog, syn. nov. = *Lejeunea princeps* (Steph.) Mizut.
2. *Riccia poihaiana* A.E.D.Daniels & P.Daniel = *R. billardieri* Mont. & Nees.

Lectotypification:

1. *Habenaria dyeriana* King & Pantl.

New to Asia

1. *Cyathus gayanus* Tul. & C. Tul.

New to India

1. *Scapania glaucocephala* (J.Taylor) Austin
2. *Plagiochila ovalifolia* Mitt.
3. *Frullania dilatata* (L.) Dumort.
4. *Lejeunea obfusca* Mitt.
5. *Lejeunea vaginata* Steph.
6. *Mannia fragrans* (Balbis) Frye & Clark
7. *Cololejeunea denticulata* (Horik.) S. Hatt.
8. *Cololejeunea inflata* Steph.
9. *Plagiochila furcifolia* Mitt.
10. *Bazzania hainanensis* L.-P. Zhou et L. Zhang
11. *Plagiochila ptychanthoidea* Steph.
12. *Cheilolejeunea vittata* (Steph. ex G. Hoffm.) R.M. Schust. & Kachroo
13. *Cololejeunea chenii* Tixier
14. *Frullania berthoumieuii* Steph.
15. *Boesenbergia parvula* (Wall. ex Baker) Kuntze
16. *Curcuma elata* Roxb.
17. *Zingiber stipitatum* S.Q. Tong
18. *Phalaenopsis yingjiangensis* (Z.H. Tsi) Kocyan & Schuit.
19. *Eria merguensis* Lindl.
20. *Calanthe hancockii* Rolfe
21. *Heteroscyphus* Sp1
22. *Cheilolejeunea* sp1
23. *Cheilolejeunea* sp2
24. *Cololejeunea* sp1
25. *Colura* sp1
26. *Lejeunea* sp1
27. *Lejeunea* sp2
28. *Acrolejeunea* sp1
29. *Plagiochila* sp1

New to India mainland

1. *Cololejeunea desciscens* Steph.
2. *Colura ari* (Steph.) Steph.
3. *Lopholejeunea eulopha* (Taylor) Schiffn.

New to Himalaya

1. *Heteroscyphus orbiculatus* Abha Srivast. & S.C.Srivast.
2. *Plagiochila richteri* Steph. ex S.C.Srivast. & R.Dixit
3. *Anthoceros macrosporus* Steph.
4. *Lejeunea exilis* (Reinw. et al.) Grolle
5. *Cololejeunea epiphylla* G.Asthana & A. Shukla
6. *Frullania riojaneirensis* (Raddi) Aongst.
7. *Lejeunea pallide-virens* S. Hatt.
8. *Mastigolejeunea indica* Steph.
9. *Mastigolejeunea virens* (Ångstr.) Steph.
10. *Riccardia perssonii* S. C. Srivast. & Udar
11. *Schiffneriolejeunea polycarpa* (Nees) Gradst.,
12. *Schiffneriolejeunea pulopenangensis* (Gottsche) Gradst.
13. *Schiffneriolejeunea tumida* (Nees) Gradst.
14. *Nervilla punctata*(Blume) Makino

Western Himalaya

20 species

New to Eastern Himalaya/ NE India

19 species

New to gangetic plains

1 species.

State New Records (c. 450 Species)

Himachal Pradesh: 27 species (Liverworts & Hornworts)

Punjab: 10 species (Liverworts & Hornworts)

Uttarakhand : 6 Liverworts (Liverworts & Hornworts)

Jharkhand: 2 species Liverworts

Tripura: 90 Species (Liverworts & Hornworts)

Mizoram: 50 species (Pteridophytes + Fl.) & more than 250 species of & Hornworts (10 published & others in process)

Meghalaya: 13 Liverworts + 2 (Fl.).

Nagaland: 1 + (48 unpubl.)

Assam : 33 Liverworts +2 Fl.

West Bengal : 5 Riccia (Liverworts)

Andaman & Nicobar: 2 (Liverworts)

Manipur: 35 Liverworts (unpubl.)



Future Plan

Illustrated liverwort and hornwort flora of India

Field guide/ pictorial guide

Explore/ Collaborate with work related to Proteomics & other applied aspects of bryophytes





Thank You