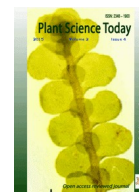




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Research Communication

Nomenclatural updates in Kashyap's 'Liverwort flora of western Himalayas and Panjab Plains'

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Abstract

An updated taxonomic status of various taxa described in the 'Liverworts of western Himalayas and Panjab plains', a monumental work of Prof. S.R. Kashyap, is provided in the light of numerous taxonomical changes occurred during course of time, with relevant references and/or annotations.

Keywords

Bryophytes; Liverworts; Himalaya; Panjab Plains

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Introduction

Prof. Shiv Ram Kashyap was born on 6th November, 1882 in Punjab. He completed his M.Sc. from Punjab University. Later on he initially served there as Professor of Botany and Dean, Faculty of Science at Punjab University, Chandigarh. He was one of the founders and the first secretary of Indian Botanical Society (IBS). In 1919, he was elected as President of Botany Section and in 1932 as General President of Indian Science Congress. Even though he also worked on Pteridophytes, he is famous for his contribution on bryophytes as he became the first Indian who published his paper on some liverworts of Western Himalayas in the year 1914, hence aptly called as 'Father of Indian bryology'. Prof. Kashyap has made several valuable contributions to Indian bryology. As a part of his valuable contribution to bryology, Prof. Kashyap established four genera new to the subject. These are *Aitchinsoniella*, *Sauchia*, *Sewardiella* and *Stephensiella*. His theory of 'Retrogressive Evolution

in Liverworts (Marchantiales)' got a distinctive position in the world of International Bryology.

The most valuable contribution of Prof. Kashyap came from his exhaustive work on western Himalayan liverworts, published as "Liverworts of the western Himalayas and Panjab Plains" in the form of two monumental volumes (Kashyap 1929, Kashyap and Chopra 1932) and still remains as the most comprehensive account of western Himalayan liverworts. In his first volume, 33 genera and 70 species were described, out of which 6 genera and 50 species were restricted to India. In total, he has described 165 species in both of the volumes, including 8 unidentified species (5 species of *Lejeunea*, 2 species of *Plagiochila* and one of *Lophozia*). It has been around more than seven decades since this monumental work was published and during this period the taxonomy of bryophytes in general and liverworts in particular have reached up to great heights which observed numerous taxonomical changes at various taxonomical levels. All the 165

taxa are listed below alphabetically with accepted names written in bold with relevant references and/or annotations.

1. *Aitchisoniella himalayensis* Kashyap
2. *Aneura indica* Stephani ex Kashyap → ***Aneura pinguis*** (L.) Dumort. (Srivastava and Udari, 1976)
3. *Aneura levieri* (Schiffner) Stephani → ***Riccardia levieri*** Schiffner (Srivastava and Udari, 1976)
4. ***Aneura pinguis*** (L.) Dumort.
5. ***Anthelia julacea*** (L.) Dumort.
6. *Anthoceros chambensis* Kashyap → ***Phaeoceros laevis*** (L.) Prosk. (Asthana and Srivastava 1991)
7. ***Anthoceros erectus*** Kashyap
8. *Anthoceros gollani* Stephani → ***Phaeoceros carolinianus*** (Michx.) Prosk. (Asthana and Srivastava 1991)
9. *Anthoceros himalayensis* Kashyap → ***Phaeoceros himalayensis*** (Kashyap) Prosk. ex Bapna and G G Vyas (Asthana and Srivastava, 1991)
10. *Anthoceros longii* Stephani → ***Anthoceros erectus*** Kashyap (Asthana and Srivastava, 1991)
11. *Athalamia dioica* Kashyap → taxonomical status doubtful, present status uncertain (Rubasinghe, 2011)
12. ***Athalamia pinguis*** Falc.
13. *Athalamia pusilla* (Stephani) Kashyap → ***Clevea pusilla*** (Stephani) Rubasinghe and D.G. Long (Rubasinghe et al., 2011)
14. ***Blasia pusilla*** L.
15. ***Blepharostoma trichophyllum*** (L.) Dumort.
16. *Calycularia compacta* Kashyap → ***Calycularia crispula*** Mitt. (fide Konstantinova and Mamontov 2010)
17. ***Calycularia crispula*** Mitt.
18. *Calypogeia renistipula* Stephani → ***Metacalypogeia alternifolia*** (Nees) Grolle (Sharma and Srivastava, 1993)
19. ***Cephalozia gollani*** Stephani '*gollani*'
20. *Chiloscyphus argutus* Nees → ***Heteroscyphus argutus*** (Nees) Schiffner (Srivastava and Srivastava, 2002)
21. ***Chiloscyphus campanulatus*** Stephani
22. *Chiloscyphus gollanii* Stephani → ***Lophocolea gollanii*** (Stephani) Váňa (Soderstrom et al. 2013)
23. *Chiloscyphus himalayensis* Stephani → ***Chiloscyphus pallescens*** (Ehrh. ex Hoffm.) Dumort. (Soderstorm et al. 2013)
24. *Chiloscyphus inflatus* Stephani → ***Heteroscyphus inflatus*** (Stephani) A. Srivast. and SC Srivast. (Srivastava and Srivastava 2002)
25. ***Chiloscyphus polyantos*** (L.) Corda '*polyanthus*'
26. ***Conocephalum conicum*** (L.) Necker
27. ***Cryptomitrium himalayense*** Kashyap
28. ***Cyathodium tuberosum*** Kashyap
29. *Diplophyllum orientale* Stephani → ***Scapania orientalis*** Stephani ex K. Müller (Srivastava and Srivastava 1995)
30. ***Dumortiera hirsuta*** Reinw., Blume et Nees
31. ***Exormotheca tuberifera*** Kashyap
32. *Fimbriaria angusta* Stephani → ***Asterella wallichiana*** (Lehm. et Lindenb.) Pande et al. [Long, 2006]
33. *Fimbriaria blumeana* Nees → ***Asterella blumeana*** (Nees) Kachroo (Kachroo, 1952)
34. *Fimbriaria calciatii* Gola → ***Mania androgyna*** (L. emend, Lindb.) A. Evans (Long, 2006)
35. *Fimbriaria gangetica* Kashyap → ***Asterella wallichiana*** (Lehm. et Lindenb.) Pande et al. (Udar and Jain, 1983; Long, 2006)
36. *Fimbriaria gollanii* Stephani → ***Asterella wallichiana*** (Lehm. et Lindenb.) Pande et al. (Udar and Jain, 1983; Long, 2006)
37. *Fimbriaria maculata* Stephani → ***Asterella wallichiana*** (Lehm. et Lindenb.) Pande et al. (Long, 2006)
38. *Fimbriaria multiflora* Stephani → ***Asterella multiflora*** (Stephani) Pande et al. ex Kachroo (Kachroo, 1958)
39. *Fimbriaria mussuriensis* Kashyap → ***Asterella mussooriensis*** (Kashyap) Verd.
40. *Fimbriaria nepalensis* Taylor → ***Asterella wallichiana*** (Lehm. et Lindenb.) Pande et al (Udar and Jain, 1983; Long, 2006)
41. *Fimbriaria papulosa* Stephani → ***Asterella khasyana*** (Gritt.) Pande, K.P. Srivast. and Sultan Khan (Long, 2006)
42. *Fimbriaria parvipora* Stephani → ***Asterella gracilis*** (F. Weber) Underw. (Long, 2006)
43. *Fimbriaria pathankotensis* Kashyap → ***Asterella multiflora*** (Stephani) Pande et al. ex Kachroo (Long, 2006)
44. *Fimbriaria reticulata* Stephani → ***Asterella leptophylla*** (Mont.) Pande et al. (Long, 2006)
45. *Fimbriaria sanguinea* Lehm. et Lindenb. → ***Asterella wallichiana*** (Lehm. et Lindenb.) Pande et al. (Long, 2006)
46. ***Fossombronia himalayensis*** Kashyap
47. ***Frullania duthiana*** Stephani
48. *Frullania gollanii* Stephani '*gollani*' → ***Frullania polyptera*** Taylor (Hattori and Lin, 1985)
49. *Frullania gracillima* Stephani → Indian collection probably ***Frullania polyptera*** Taylor (Hattori, 1980)
50. *Frullania grevilleana* Taylor → ***Frullania nepalensis*** (Spreng.) Lehm. et Lindenb. var. ***grevilleana*** (Taylor) S. Hatt. (Mizutani, 1979)
51. ***Frullania himalayensis*** Stephani
52. ***Frullania muscicola*** Stephani
53. *Frullania pyriflora* Stephani → ***Frullania polyptera*** Taylor (Hattori, 1974)
54. *Frullania retusa* Mitt. → ***Frullania retusa*** Mitt. var. ***retusa***
55. *Frullania squarrosa* Nees → ***Frullania ericoides*** (Nees) Mont. (Hattori and Lin, 1985)
56. *Grimaldia indica* Stephani → ***Mania indica*** (Stephani) Kachroo (Kachroo, 1958)
57. *Jamesoniella elongella* (Tayl.) Stephani → ***Syzygiella elongella*** (Taylor) Stephani (Feldberg, 2010)
58. *Jungermannia duthiana* Stephani (sensu Kashyap 1929) → ***Solenostoma confertissimum*** (Nees) Schljakov (Váňa and Long, 2009)
59. *Jungermannia humilis* Kashyap → doubtful status (nom. Illeg.), present status uncertain (Váňa and Long, 2009)
60. ***Jungermannia oblongifolia*** Kashyap
61. *Jungermannia tenerrima* Stephani → ***Jungermannia gollanii*** Stephani (Váňa and Long, 2009)
62. *Jungermannia viridis* Kashyap → doubtful status (nom. Illeg.), present status uncertain (Váňa and Long, 2009)
63. *Lejeunea chinensis* (Stephani) Stephani ex Kashyap → ***Tuzibeanthus chinensis*** (Stephani) Mizut. (Mizutani, 1961)
64. ***Lejeunea perrottetii*** Stephani
65. *Lejeunea* sp. A → Status not evaluated
66. *Lejeunea* sp. B → Status not evaluated
67. *Lejeunea* sp. C → Status not evaluated

68. *Lejeunea* sp. D → Status not evaluated
 69. *Lejeunea* sp. E → Status not evaluated
 70. ***Lepidozia reptans*** (L.) Dumort.
 71. *Lophocolea alata* Mitt. ex Larter → ***Lophocolea cuspidata*** (Nees) Limpr. (fide Srivastava and Srivastava, 2002)
 72. ***Lophocolea hidentata*** (L.) Dumort.
 73. ***Lophocolea heterophylla*** (Schrad.) Dumort.
 74. ***Lophocolea minor*** Nees
 75. *Lophozia alpestris* (Schleich.) Evans → ***Leiocolea collaris*** (Nees) Scjlljakov (Singh, 2012)
 76. ***Lophozia incisa*** (Schrad.) Dumort.
 77. *Lophozia piacenzai* Gola → ***Lophocolea piacenzii*** (Gola) Váňa (Söderström et al. 2013)
 78. *Lophozia* sp. → Status not evaluated
 79. ***Lunularia cruciata*** Dumort.
 80. *Madotheca acutiphylla* Kashyap → ***Porella caespitans*** (Stephani) S. Hatt. (Hattori, 1978)
 81. *Madotheca angusta* Stephani → ***Porella gracillima*** Mitt. (Hattori, 1978)
 82. *Madotheca appendiculata* Stephani → ***Porella densifolia*** S. Hatt. subsp. ***appendiculata*** (Stephani) S. Hatt. (Hattori, 1978).
 83. *Madotheca borellii* Gola → ***Porella borellii*** (Gola) Parihar (fide Bapna and Kachroo, 2000)
 84. *Madotheca campylophylla* Lehm. et Lindenb. → ***Porella campylophylla*** (Lehm. et Lindenb.) Trevis var. ***campylophylla*** (Hattori, 1978)
 85. *Madotheca decurrens* Stephani → ***Porella decurrens*** (Stephani) S. Hatt. (Hattori, 1969)
 86. *Madotheca densifolia* Stephani → ***Porella densifolia*** (Stephani) S. Hatt. (Hattori, 1944)
 87. *Madotheca densiramea* Stephani → ***Porella chinensis*** (Stephani) Hatt. (Hattori, 1978)
 88. *Madotheca denticulata* Kashyap → ***Porella denticulata*** (Kashyap and Chopra) J.X. Luo (Li, 1985)
 89. *Madotheca gambleana* Stephani → ***Porella chinensis*** (Stephani) S. Hatt. (Hattori, 1978)
 90. *Madotheca gollanii* Stephani ('gollani') → ***Porella campylophylla*** (Lehm. et Lindenb.) Trevis var. ***campylophylla*** (Hattori, 1978)
 91. *Madotheca gracillima* Mitt → ***Porella gracillima*** Mitt. (Hattori, 1978)
 92. *Madotheca hastata* Stephani → ***Porella chinensis*** fo. ***hastata*** (Stephani) S. Hatt. (Hattori, 1975)
 93. *Madotheca macroloba* Stephani → ***Porella obtusata*** (Taylor) Trevis var. ***macroloba*** (Stephani) S. Hatt. and Zhang (Hattori and Zhang, 1985)
 94. *Madotheca obtusifolia* Kashyap → ***Porella gracillima*** Mitt. (Hattori, 1978)
 95. *Madotheca ovalis* Gottsche (MS) → ***Porella obtusata*** (Taylor) Trevis var. ***macroloba*** (Stephani) S. Hatt. and Zhang (Hattori and Zhang, 1985)
 96. *Madotheca platyphylla* (L.) Dumort. → ***Porella platyphylla*** (L.) Pfeiff. (Hattori, 1978)
 97. *Madotheca plumosa* Mitt. → ***Porella plumosa*** (Mitt.) Inoue (Hattori, 1978)
 98. *Madotheca trigonifolia* Stephani → ***Porella platyphylla*** (L.) Pfeiff. (Shaheen and Srivastava, 1986)
 99. *Madotheca variabilis* Kashyap → ***Porella variabilis*** (Kashyap) Kachroo (Kachroo, 1973)
 100. *Madotheca virens* Stephani → ***Porella platyphylla*** (L.) Pfeiff. (Shaheen and Srivastava, 1986)
 101. ***Marchantia nepalensis*** Lehm. et Lindenb.
 102. *Marchantia palmata* Nees → ***Marchantia emarginata*** Reinw., Blume and Nees subsp. ***emarginata*** (Bischler, 1989)
 103. ***Marchantia polymorpha*** L.
 104. *Marchantia simlana* Stephani → ***Marchantia papillata*** Raddi subsp. ***grossibarba*** (Stephani) Bischl. (Bischler, 1989)
 105. *Massalongoa tenera* Stephani → ***Cryptomitrium himalayense*** Kashyap (Kachroo et al, 1977)
 106. *Mastigobryum triangulare* (Schleich.) Stephani → ***Bazzania tricrenata*** (Wahlenb.) Lindb. (Sharma and Srivastava, 1993)
 107. ***Metzgeria conjugata*** Lindb.
 108. ***Metzgeria furcata*** (L.) Lindb.
 109. *Metzgeria himalayensis* Kashyap → ***Metzgeria lindbergii*** Schiffner (So, 2003)
 110. ***Metzgeria pubescens*** Raddi
 111. ***Notothylas indica*** Kashyap
 112. ***Notothylas levieri*** Schiffner
 113. *Pellia calycina* (Taylor) Nees → ***Pellia endiviifolia*** (Dicks.) Dumort. (Schuster, 1992)
 114. ***Pellia epiphylla*** (L.) Lindb.
 115. ***Pellia neesiana*** (Gottsche) Limpr.
 116. ***Petalophyllum indicum*** Kashyap
 117. ***Plagiochasma appendiculatum*** Lehm. and Lindenb.
 118. *Plagiochasma articulatum* Kashyap → ***Plagiochasma pterospermum*** C. Massal. (Bischler, 1979)
 119. ***Plagiochasma cordatum*** Lehm. and Lindenb.
 120. ***Plagiochasma intermedium*** Lindenb. and Gottsche
 121. *Plagiochasma quadricornutum* Stephani → ***Plagiochasma pterospermum*** C. Massal. (Bischler, 1979)
 122. *Plagiochasma simlense* Kashyap → ***Plagiochasma rupestre*** (J.R. Forest. and G. Forest) Stephani (Bischler, 1979)
 123. *Plagiochila accedens* Stephani → ***P. korthalsiana*** Molck. ex Sande Lac. (Inoue, 1984)
 124. *Plagiochila asplenioides* (L.) Dumort. → status doubtful, may be erroneous report of *P. ovalifolia* (So and Grolle, 2000)
 125. *Plagiochila cavifolia* Stephani → ***P. duthiana*** Stephani (Inoue, 1965)
 126. ***Plagiochila duthiana*** Stephani
 127. *Plagiochila ferruginea* Stephani → ***Plagiochila durelii*** Schiffner subsp. ***durelii*** (Grolle and So, 1999a)
 128. *Plagiochila gollani* Stephani → ***Plagiochila nepalensis*** Lindenberg (Grolle and So 1999b)
 129. *Plagiochila grata* Stephani → ***Plagiochila nepalensis*** Lindenberg (Grolle and So 1999c)
 130. *Plagiochila himalayensis* Stephani → ***Plagiochila duthiana*** Stephani (Inoue, 1967)
 131. *Plagiochila mittenii* Stephani → ***Plagiochila uniformis*** Mitt. (Inoue, 1965)
 132. ***Plagiochila mundaliensis*** Stephani
 133. *Plagiochila nana* Stephani → ***Plagiochila durelii*** Schiffner (So and Grolle, 2000)
 134. *Plagiochila simlana* Mitt. → ***Plagiochila uniformis*** Mitt. (So and Grolle, 2000)
 135. *Plagiochila* sp. A → Status not evaluated
 136. *Plagiochila* sp. B → Status not evaluated
 137. ***Preissia quadrata*** (Scop.) Nees
 138. ***Ptychanthus striatus*** (Lehm. and Lindenb.) Nees
 139. ***Radula complanata*** (L.) Dumort.
 140. *Radula douleana* Stephani → ***Radula grandifolia Stephani*** (Udar and Kumar 1984)
 141. ***Radula grandifolia*** Stephani

142. *Radula lindbergii* Gottsche
 143. *Reboulia hemispherica* (L.) Raddi
 144. *Riccia cruciata* Kashyap
 145. *Riccia fluitans* L. sensu Kashyap (1929) → *Riccia stricta* (Gottsche, Lindenb and Nees) Perold (fide Manju et al., 2012)
 146. *Riccia himalayensis* Kashyap → *Riccia discolor* Lehm. and Lindenb. (Srivastava, 1964)
 147. *Riccia melanospora* Kashyap
 148. *Riccia pathankotensis* Kashyap
 149. *Riccia robusta* Kashyap → *Riccia crystallina* L. (Nicholson, 1932)
 150. *Riccia sanguinea* Kashyap → *Riccia frostii* Austin (Srivastava, 1964)
 151. *Riella indica* Stephani ex Kashyap → uncertain taxonomical status
 152. *Sauchia spongiosa* Kashyap → *Sauteria spongiosa* (Kashyap) Hatt. (Schimizu and Hattori, 1954)
 153. *Sauteria alpina* Nees
 154. *Scapania parva* Stephani → *S. verrucosa* Heeg. (fide Potemkin, 2002)
 155. *Scapania purpurea* Kashyap → Potemkin (2002) speculated it as a synonym of *Scapania undulata* (L.) Dumort.
 156. *Scapania verrucosa* Heeg.
 157. *Sewardiella tuberifera* Kashyap
 158. *Solenostoma brevifolia* Kashyap → *Solenostoma breviflorum* Kashyap (Váňa and Long, 2009)
 159. *Solenostoma crenulata* (Sm.) Stephani → *Solenostoma gracillimum* (Sm.) R.M. Schust. (fide Váňa and Long, 2009)
 160. *Solenostoma lanceolata* (L.) Stephani → *Jungermannia atrovirens* Dumort. (Váňa and Long, 2009)
 161. *Solenostoma purpurata* Mitt. → *Solenostoma purpuratum* (Mitt.) Stephani (Váňa and Long, 2009)
 162. *Southbya gollani* Stephani
 163. *Stephensiella brevipedunculata* Kashyap
 164. *Targionia hypophylla* L.
 165. *Wiesnerella denudata* (Mitten) Stephani

Result and Discussion

The present work is an effort to provide the present status of various taxa described by Kashyap in this monumental work. Out of 165 described species, 4 records which are doubtful and 8 unidentified species were not evaluated. Out of rest 153 species, only 62 still have maintained their status while taxonomical status of 91 have been changed, thus making a final count of 127 accepted names.

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