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A PRELIMINARY CHECK-LIST OF HEPATICS OF WEST BENGAL

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ABSTRACT

A check-list of Hepatics of West Bengal has been provided. The list is based mainly on published records and hepatics housed in Central National Herbarium (CAL) along with some new collections made by the author. The Hepatics of West Bengal are represented by 35 families, 73 genera and 221 species. It is expected that the number of hepatic species may increase with further hepatic investigation in different districts of West Bengal. According to literature information, 5 species listed here are rare and 20 species are endemic to Darjeeling Himalayas.

INTRODUCTION

The hill range of Darjeeling Himalayas is one of the natural homes of liverworts, with luxuriant vegetation. The liverworts growing in these areas are subject to considerable stress due to tourist and developmental activities. It has lead to the destruction of habitat of many species causing threat to their survival. A total of 5 species have been enlisted here as rare species with narrow ecological range and restricted distribution *viz.*, *Haplomitrium hookeri* (Smith) Nees, *Schiffneria hyalina* Steph., *Calycularia crispula* Mitt., *Wiesnerella denudata* (Mitt.) Steph., and *Concephalum japonicum* (Thunb.) Grolle. Among the above listed species, *C. japonicum* was only once collected in 1941 from Darjeeling and has never been collected against from the same locality. These species need urgent attention towards their conservation as their population are getting deleped day by day.

A total of 20 species have been recorded here as endemic to West Bengal, mainly confined to Eastern Himalayas (Darjeeling). They grow on moist soil covered rocks in association with other leafy liverworts. These are : *Calobryum indicum* Udar & Chandra, *C. dentatum* Kumar & Udar, *Haplomitrium grollei* Kumar & Udar, *H. kashyapii* Udar & Kumar, *Trichocolea indica* Udar & Singh, *T. tenera* Udar & Singh, *Notoscypus pandei* Udar & Kumar, *N. darjeelingensis* Udar & Kumar, *Cephalozia darjeelingensis* Udar & Kumar, *C. khashyappi* Udar & Kumar, *C. pandei* Udar & Kumar, *Cephaloziella indica* Udar & Kumar, *Cololejeunea indica* Pande & Mishra, *Jubula hattorii* Udar & Nath, *Frullania hattoriantha* Udar & Nath, *Riccardia villosa* Steph., *R. sikkimensis* Steph., *Pallavicinia himalayensis* Schiffin., *Cyathodium denticulatum* Udar & Sritrastava, *C. tuberculatum* Udar & Singh. Out of these *R. villosa* Steph., growing epiphytically was collected only once in 1941

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from Darjeeling since its original discovery in 1917. After that no data is available on its present status in wild.

In this paper altogether 221 species belonging to 73 genera and 35 families have been enumerated with place of occurrence in West Bengal. The families are arranged according to system of classification of Schuster (1984), while genera and species are arranged alphabetically.

CALOBRYALES

HAPLOMITRIACEAE

CALOBRYUM Neem.

1. **Calobryum dentatum** Kumar & Udar

Distrb. : West Bengal : arjeeling dist., Ghum 2200 m.

2. **C. Indicum** Udar & Chandra

Distrib.: West Bengal : Darjeeling dist., Ghum 2200 m.

HAPLOMITRIUM Nees

3. **Haplomitrium grollei** Kumar & Udar

Distrib. : West Bengal : Darjeeling dist., on way to Teesta valley from Ghum 2200 m.

4. **H. hookeri** (Smith) Nees

Distrib. : West Bengal : Darjeeling dist., 2000 m.

5. **H. Kashyapii** Udar & Kumar

Distrib. : West Bengal : Darjeeling dist., on way to Teesta valley from Ghum 2000 m.

JUNGERMANNIALES

HERBERTACEAE

HERBERTUS Gray

6. **Herbertus chinensis** Steph.

Distrib. : West Bengal : Darjeeling dist., Phaullut 3550 m; Phallut – Dentum 1450 3630 m.

7. **Herbertus dicarnus** (Tayl.) Trev.

Distrib. : West Bengal : Darjeeling dist., Phallut 3500 m; Phallut – Dentum 1450 3630 m.

8. **H. fragilis** (Steph.) H. A. Miller

Distrib. : West Bengal : Darjeeling dist., Tenzing Norgey road, Brich hill 2000 m; Kurseong 1550 m; Darjeeling Tiger hill 2000 2500 m.

9. **H. himalayanus** (Steph.) Herz.

Distrib. : West Bengal : Darjeeling dist., Tamam – Phallut 2200 3550 m; Darjeeling 2000 m.

10. **H. mastigophoroides** H. A. Miller

Distrib. : West Bengal : Darjeeling dist., Kurseong 1550 m; Darjeeling 2000 m.

TRICHOCOLEACEAE

TRICHOCOLEA Dumort.

11. **Trichocolea indica** Udar & Singh

Distrib. : West Bengal : Darjeeling dist., Ghum 2200 m; Tonglu 2800 m; Darjeeling 2000 m.

12. **T. tenera** Udar & Singh

Distrib. : West Bengal : Darjeeling dist., Darjeeling 2000 m.

13. **T. tomentella** (Ehrh.) Dumort.

Distrib. : West Bengal : Sandakphu Tonglu 2600 3000 m.

LEPIDOZIACEAE

BAZZANIA Gray

14. **Bazzania appendiculata** (Mitt.) Hatt.

Distrib.: West Bengal : Darjeeling dist., Mungpu 1250 m; Kurseong 1000 m.

15. **B. himalayana** (Mitt.) Schiffn.

Distrib. : West Bengal : Darjeeling dist., Senchal 2700 m; Ghum 2200 m; Tonglu 2800 m; Tiger

hill 2700 m; Rimbick road 2000 m, 01. 06. 1985. *J. P. Ghosh* 59869; Road side of Manaebhanjan 2000 m, 27.05.1985. *J. P. Ghosh* 59849; on way to Rimbick 27.05.1985. *J. P. Ghosh* 59845.

16. Bazzania imbricata (Mitt.) Hatt.

Distrib. : West Bengal : Darjeeling dist., on way to Batasae from Manaebhanjan 2000 m, 20.05.1985. *J. P. Ghosh* 59812; Dhotrey 2530 m, 20.05.1985. *J. P. Ghosh* 59836; Sukia Pokhari 2300 m, 29.05.1985. *J. P. Ghosh* 59860.

17. B. ovistipula (Steph.) Mizut.

Distrib. : West Bengal : Happy valley Tiger hill 2400 2500 m; Manaebhanjan 2400 m; Senchal lake Ghum 2200 2400 m; Sandakphu Tonglu 2600 2700 m.

18. B. pearsonii Steph.

Distrib. : West Bengal : near Sandakphu 3600 3700 m.

19. B. prerupta (Reinw., Blume & Nees) Trev.

Distrib. : West Bengal : Tonglu 3100 m; Chittre above Manaebhanjan 2400 m; Happy valley Tiger nill 2400 2500 m; Manaebhanjan 2400 m; Manaebhanjan to Batasae 2000 m, 20.05.1985. *J. P. Ghosh* 59811, 59814.

20. B. sikkimensis (Steph.) Herz.

Distrib. : West Bengal : Kurseong 1000 m; Senchal Tiger hill 2400 2500 m; Darjeeling 2200 m; Sandakphu Tonglu 2600 3550 m; Chittre above Manaebhanjan 2400 m.

21. B. trictranata (Wall.) Trev.

Distrib. : West Bengal : Manaebhanjan to Batasae 2000 m, 20.05.1985. *J. P. Ghosh* 59809; Simana forest, 28.05.1985. *J. P. Ghosh* 59856; Tonglu 3000 m.

DENDROBAZZANIA Schust. & Schof.

22. Dendrobazzania griffithiana (Steph.) Schust. & Schof.

Distrib. : West Bengal : Darjeeling around Dackbunglow 2000 m; Tonglu 3000 m.

LEPIDOZIA Dumort.

23. Lepidozia erosa Steph.

Distrib. : West Bengal : Darjeeling 2000 m.

24. Lepidozia reptans (L.) Dumort.

Distrib. : West Bengal : Phallut Sandakphu 3200-3550 m; Sandakphu Tonglu 2800-3550 m.

25. L. robusta Steph.

Distrib. : West Bengal : Sandakphu Tonglu 2600-2700 m.

CALYPOGEACEAE

CALYPOGEIA Raddi

26. Calypogeia fissa (L.) Raddi

Distrib. : West Bengal : Darjeeling 2000 m.

27. C. hartlessiana Steph.

Distrib. : West Bengal : Darjeeling 2000 m.

28. C. renistipula Steph.

Distrib. : West Bengal : Darjeeling 2000 m.

29. C. trichomanis (L.) Corda

Distrib. : West Bengal : Darjeeling 2000 m.

METACALYPOGEIA (Nees) Grolle

30. Matacalypogeia alternifolia (Nees) Grolle

Distrib. : West Bengal : Sandakphu Tonglu 2800-3500 m.

CEPHALOZIACEAE

CEPHALOZIA Dumort.

31. Cephalozia darjeelingensis Udar & Kumar

Distrib. : West Bengal : Darjeeling 2000 m.

32. C. gollani Steph.

Distrib. : West Bengal : Darjeeling dist., Darjeeling 2000 m.

33. **Cephalozia indica** Kumar & Udar

Distrib. : West Bengal : Darjeeling dist., Darjeeling, Senchal lake 2150 m.

34. **C. kashyapii** Udar & Kumar

Distrib. : West Bengal : Darjeeling 2000 m.

35. **C. laxifolia** Udar & Kumar

Distrib. : West Bengal : Darjeeling; Senchal lake 2150 m.

36. **C. pandei** Udar & Kumar

Distrib. : West Bengal : Darjeeling dist., Darjeeling 2000 m.

NOWELLIA Mitt.

37. **Nowellia orientalis** Chopra

Distrib. : West Bengal : Darjeeling 2000 m.

ODONTOSCHSIMA Dumort.

38. **Odontoschsima sphagni** (Dicks.) Dumort.

Distrib. : West Bengal : Darjeeling area, Phallut 3550 m.

SCHIFFNERIA Steph.

39. **Schiffneria hyalina** Steph.

Distrib. : West Bengal : Darjeeling dist., Darjeeling 2000 m.

CEPHALOZIELLACEAE

CEPHALOZIELLA (Spruce) Schiffn.

40. **Cephaloziella indica** Udar & Kumar

Distrib. : West Bengal : Kalimpong 2000 m.

41. **C. subdentata** Warnst.

Distrib. : West Bengal : Phallut 3550; Darjeeling 2000 m.

JUNGERMANNIACEAE

ANSTREPTA (Lindb.) Schiffn.

42. Anstrepta orcadensis (Hook.) Schiffn.

Distrib. : West Bengal : Darjeeling dist., Phallut-Sandakphu 3200-3550 m.

ANASTROPHYLLUM (Spruce) Steph.

43. Anastrophyllum assimile (Mitt.) Steph.

Distrib. : West Bengal : Darjeeling dist., Phallut 3550 m.

CHANDONANTHUS Mist.

44. Chandonanthus birmensis Steph.

Distrib. : West Bengal : Darjeeling dist., Darjeeling 2000 m; Phallut-Sandakphu 3200-3550 m; Kalimpong 1550 m.

45. C. hirtellus (Web.) Mitt.

Distrib. : West Bengal : Senchal 2400 m; Darjeeling-Tiger hill 2150-2800 m; Sandakphu Tonglu 2600 - 3550 m.

JAMESONIELLA (Spruce) Carring

46. Jamesoniella autumnalis (DC.) Steph.

Distrib. : West Bengal : Darjeeling dist., Phallut 3550 m.

JUNGERMANNIA L.

47. Jungermannia (Solenostoma) appressifolia Mitt.

Distrib. : West Bengal : Darjeeling dist., near Sandakphu 1600-1900 m; between Sandakphu Tonglu 2600-3500 m.

48. J. (Solenostoma) appressifolia var. **nigricans** (Amak.) Vana

Distrib. : West Bengal : Darjeeling dist., Darjeeling 3100 m.

49. J. (Solenostoma) atrobrunea Amak.

Distrib.: West Bengal : Darjeeling dist., near Sandakphu 1600-1900 m.

50. Jungermannia bengalensis Amak.

Distrib. : West Bengal : Darjeeling dist., Sandakphu.

51. J. (Plectocolea) comata Nees

Distrib. : West Bengal : Darjeeling dist., Darjeeling 3000 m.

52. J. (Solenostoma) heterolimbata Amak.

Distrib. : West Bengal : Darjeeling dist., between Sandakphu Tonglu 2500-2600 m.

53. J. (Solenostoma) lanigera Mitt.

Distrib. : West Bengal : Sandakphu Tonglu 2600-3500 m.

54. J. (Solenostoma) limbatifolia Mitt.

Distrib. : West Bengal : Darjeeling dist., between Sandakphu Tonglu 2600-3500 m.

55. J. (Solenostoma) macrocarpa (Schiffn.) Steph.

Distrib. : West Bengal : Darjeeling dist., Tonglu 3000 m.

56. J. (Solenostoma) suborbiculata Amak.

Distrib. : West Bengal : Darjeeling dist., Sandakphu Tonglu 2600-3550 m.

57. J. (Solenostoma) parvitexa Amak.

Distrib. : West Bengal : Darjeeling dist., near Sandakphu 1600-1900 m; between Sandakphu Tonglu 2600-3500 m.

58. J. (Solenostoma) pseudocyclops Inoue

Distrib. : West Bengal : Darjeeling dist., between Manaebhanjan Ghum 2200 m.

59. J. (Solenostoma) schauliana Steph.

Distrib. : West Bengal : Darjeeling dist., Kurseong 1500 m; Tonglu 3000 m; Senchal lake and Ghum 2000 m.

60. Jungermannia (Solenostoma) stephanii (Schiffn.) Amak.

Distrib. : West Bengal : Darjeeling dist., Labong Road; Tiger hill on way to Teesta; Ghum to Teesta valley.

61. J. (Solenostoma) subrubra Steph.

Distrib. : West Bengal : Ranbi forest near Darjeeling 2400 m; Sandakphu Tonglu 2600-3500 m.

LOPHOZIA (Dumort.) Dumort.

62. Lophozia incisa (Schrad.) Dumort.

Distrib. : West Bengal : Darjeeling dist., Phallut Sandakphu 3200-3550 m.

63. L. longidens (Limb.) Mac.

Distrib. : West Bengal : Darjeeling dist., Phallut Sandakphu 3200-3550 m.

64. L. setosa (Mitt.) Steph.

Distrib. : West Bengal : Darjeeling dist., Tonglu 2800 m; Sandakphu 3550 m.

NARDIA Gray

65. Nardia flegelliformis Inoue

Distrib. : West Bengal : Darjeeling dist., Singalila Mountains 3650 m.

NOTOSCYPHUS Mitt.

66. Notoscyphus darjeelingensis Udar & Kumar

Distrib. : West Bengal : Darjeeling dist., Darjeeling 2000 m.

67. N. pandei Udar & Kumar

Distrib. : West Bengal : Darjeeling dist., Kurseong 1550 m.

68. N. paroicus Schiffn.

Distrib. : West Bengal : Darjeeling dist., Kurseong 1550 m.

TETRALOPHOZIA (Schust.) Schjakov

69. Tetralophozia filiformis Steph.

Distrib. : West Bengal : Darjeeling dist., Phallut 3550 m.

SCAPANIACEAE

DIPLOPHYLLUM (Dumort.) Dumort.

70. Diplophyllum nanum Herz.

Distrib. : West Bengal : Darjeeling.

SCAPANIA (Dumort.) Dumort.

71. Scapania angusta Mitt. ex Muell.

Distrib. : West Bengal : Darjeeling dist., Sandakphu Tonglu 2600-3550 m; Royvilla road 2000 m; on way to Teesta valley road 2000 m; Phallut 3500 m.

72. S. ciliata Sande-Lac.

Distrib. : West Bengal : Darjeeling 2000 m.

73. S. ciliatospinosa Horik.

Distrib. : West Bengal : Phallut 3550 m; Sandakphu Tonglu 2600-3550 m; Phallut Sandakphu 3200-3500 m.

74. S. contrata Mitt.

Distrib. : West Bengal : Darjeeling.

75. S. ferruginea (Lehm. & Lindenb.) Gottsche

Distrib. : West Bengal : Darjeeling dist., Senchal range 2450 m, 18.04.1901. *A. C. Hartless* 254, 256 (CAL); Gauribus 2800 m, 23.05.1985. *J. P. Ghosh,* 59820, 59826, 59834, 59835.

76. S. griffithii Schiffn.

Distrib. : West Bengal : Birch hill-Darjeeling 2000 m.

77. Scapania glaucoviridis Horik.

Distrib. : West Bengal : Darjeeling dist., Sandakphu, Tonglu 2800 m.

78. S. lingulata Steph.

Distrib. : West Bengal : Darjeeling dist. Sandakphu -Tonglu 2800-3500 m.

79. S. maxima Horik.

Distrib. : West Bengal : Darjeeling 2000 m; Senchal; Tiger hills.

80. S. nimbosa Tayl.

Distrib. : West Bengal : Darjeeling dist., Phallut 3550 m.

81. S. orientalis Steph.

Distrib. : West Bengal : Darjeeling dist., Darjeeling 2000 m; Phallut 3550 m.

82. S. ornithopdioides (With.) Pears.

Distrib. : West Bengal : Darjeeling dist., Senchal Tiger hill; Rimbick 2200 m.

83. S. secunda Steph.

Distrib. : West Bengal : Darjeeling 2000 m.

GEOCALYCACEAE

CHILOSCYPHUS Corda

84. Chiloscyphus polyanthus (L.) Corda

Distrib. : West Bengal : Ghum, Senchal, Phallut 3550

HETEROSCYPHUS Schiffn.

85. Heteroscyphus argutus (Rienw. & *al.*) Schiffn.

Distrib. : West Bengal : Darjeeling 2000 m; Kurseong Siliguri road 2000 m; Kalimpong 2000 m.

86. Heteroscyphus bescherellei Steph.

Distrib. : West Bengal : Senchal 2300 m; Sandakphu 3550 m; Tonglu 2000 m.

87. H. flaccidus (Mitt.) Srivast. & Srivast.

Distrib. : West Bengal : Ghum, Senchal, Tiger hill.

88. H. inflatus (Steph.) Srivast. & Srivast.

Distrib. : West Bengal : Darjeeling 2000 m.

89. H. pandei Srivast. & Srivast.

Distrib. : West Bengal : Kalimpong 2000 m.

90. H. tener (Steph.) Schiffn.

Distrib. : West Bengal : Senchal 2000 m; Phallut 3550 m.

LOPHOCOLEA (Dumort.) Dumort.

91. Lophocolea bidentata (L.) Dumort.

Distrib. : West Bengal : Darjeeling 2000 m.

92. L. cuspidata (Nees) Limpr.

Distrib. : West Bengal : Darjeeling 2000 m.

93. L. sikkimensis (Steph.) Herzog & Grolle

Distrib. : West Bengal : Sandakphu Tonglu 2800-3550 m.

PLAGIOCHILACEAE

PLAGIOCHILA (Dumort.) Dumort.

94. Plagiochila corticola Steph.

Distrib. : West Bengal : Darjeeling dist., Darjeeling 2000-2100 m; Phallut 3550 m.

95. Plagiochila cuspidata Steph.

Distrib. : West Bengal : Darjeeling dist., Darjeeling 2150 m; Happy valley, Darjeeling Senchal 2150-2500 m.

96. P. debilis Mitt.

Distrib. : West Bengal : Darjeeling Senchal 2150-2500 m; Senchal Tiger hill 2200 2500 m; Sandakphu Tonglu 2600-3550 m; Phallut 3550 m.

97. P. denticulata Mitt.

Distrib. : West Bengal : Darjeeling dist., Darjeeling 2150 m; Ghum Senchal 2200 m; Sandakphu Tonglu 2600-3550 m.

98. P. devexa Steph.

Distrib. : West Bengal : Darjeeling 2000-2200 m; Victoria falls, Darjeeling Senchal 2200 m; Phallut 3550 m.

99. P. druelii Schiffn.

Distrib. : West Bengal : Darjeeling dist., Phallut 3550 m; Senchal Tiger hill 2400-2500 m; Darjeeling Senchal 2150-2550 m; Sandakphu Tonglu 2600-3550 m.

100. P. elegans Mitt.

Distrib. : West Bengal : Batasi Palmazoa 2300-2600 m; Sandakphu Tonglu 2600-3550 m.

101. P. flexuosa Mitt.

Distrib. : West Bengal : Ghum Senchal 2250-2400 m; Senchal Tiger hill 2200-2500 m; Takdah 1000-1700 m; on way from Manaebhanjan to Batasi 2000 m, 20.05.1985 *J. P. Ghosh* 59810; Rimbick road, 26.05.1985 *J. P. Ghosh* 59842.

102. P. fruticosa Mitt.

Distrib. : West Bengal : Kurseong 1550 m; Senchal Tiger hill 2200-2400 m; Batasi 2000-2150 m; Takdah 1000-1700 m.

103. P. gracilis Lindenb. & Gottsche

Distrib. : West Bengal : Tenzing Norgey road - Birch hill 2000 m; Senchal - Tiger hill 2400-2500 m; Phallut

3550 m; Sandakphu Tonglu 2600-3550 m; Darjeeling, 2.11.1900. *A. C. Hartles* 3242 (CAL); Rimbick road, 30.05.1985 *J. P. Ghosh* 59865; Manaebhanjan, 19.05.1985. *J. P. Ghosh* 59810.

104. Plagiochila mundaliensis Steph.

Distrib.: West Bengal : Darjeeling dist., Senchal Tiger hill 2400-2500 m.

105. P. nepalensis Lindenb.

Distrib.: West Bengal : Darjeeling; Takdah 1600-1700 m; Tenzing Norgey road Birch hill 2200 m; Senchal Tiger hill 2400-2500 m; Rimbick 2200 m; Phallut 3550 m.

106. P. pseudorenitens Schiffn.

Distrib.: West Bengal : Senchal Darjeeling 2150-2400 m; Sandakphu Tonglu 2600-3550 m; Tonglu Darjeeling 2150-3000 m; Darjeeling 2000-2200 m; Rimbick Rambam 1900-2400 m; Phallut 3550 m.

107. P. sciophila Nees

Distrib.: West Bengal : Darjeeling dist., Phallut 3550 m; Takdah 1600-1700 m; Senchal 2400 m; Senchal Tiger hill 2400-2500 m.

108. P. secretifolia Mitt.

Distrib.: West Bengal : Darjeeling dist., Senchal Tiger hill 2400-2500 m; Gauribas Tonglu 2800-3000 m; Darjeeling Senchal 2100-2500 m.

109. P. semidecurrens (Lehm. & Lindeb.) Lehm. & Lindenb.

Distrib.: West Bengal : Darjeeling dist., Darjeeling 2100 m; Darjeeling Senchal 2100-2500 m; Phallut 3550 m; Sandakphu Tonglu 2600-3550 m; Phallut Sandakphu 3200-3550 m.

110. P. subtropical Steph.

Distrib.: West Bengal : Ghum Senchal 2200 m; Sandakphu Tonglu 2600-3550 m; Darjeeling 2000-2200 m.

ACROBOLBACEAE

ACROBOLBUS Nees

111. Acrobolbus ciliatus (Mitt.) Schiffn.

Distrib.: West Bengal : Darjeeling dist., Phallut 3550 m.

RADULACEAE

Radula Dumort.

112. Radula complanata (L.) Dumort.

Distrib. : West Bengal : Darjeeling 2000 m; Senchal lake, October 176, *Dr. J. Lal* Acc. No. 290.

113. R. lindbergiana Gottsche (L.) Dumort.

Distrib. : West Bengal : Darjeeling 2000 m.

MASTIGOPHORACEAE

Mastigophora Nees

114. Mastigophora woodsi (Hook.) Nees

Distrib. : West Bengal.

PORELLACEAE

Porella L.

115. Porella campylophylla (Lehm. & Lindenb.) Trev.

Distrib. : West Bengal : Rimbick road from Manaebhanjan, 01.06.1986. *J. P. Ghosh* 69873; Manaebhanjan foot hill of Tonglu, 22.05.1985. *J. P. Ghosh* 59812, 59867; Kurseong 950-1250 m; Tonglu 3050 m; Darjeeling Teesta bridge 1250 m; Chittre above Manaebhanjan 2400 m.

116. P. campyllophylla var. **ligulifera** (Tayl.) Hatt.

Distrib. : West Bengal : Chittre above Manaebhanjan 2400 m; Ranjit Tea garden 1250 m.

117. P. perrottetiana (Mont.) Trev.

Distrib. : West Bengal : Darjeeling 2000 m; Kurseong 1550 m.

JUBULACEAE

Frullania Raddi

118. Frullania arecae (Spreng.) Gottsche

Distrib. : West Bengal : Darjeeling 2000-2200 m; Victoria falls Darjeeling 1950 m; Kurseong.

119. Frullania duthiana Steph.

Distrib.: West Bengal : Darjeeling dist., Tonglu 3200 m; Phallut 3550 m; Tiger hill 2000 m; Sandakphu 3550 m.

120. F. ericoides (Nees) Mount.

Distrib.: West Bengal : Darjeeling dist., Darjeeling 2000 m; Kurseong 1550 m; Darjeeling Senchal 1200 m.

121. F. gaudichaudii (Nees & Mont.) Nees & Mont.

Distrib.: West Bengal : Darjeeling dist., Darjeeling 2000-2200 m.

122. F. hattoriantha Udar & Nath

Distrib.: West Bengal : Darjeeling dist., Lloyod Botanical Garden, Darjeeling 2285 m.

123. F. nepalensis (Spreng.) Lehm & Lindenb.

Distrib.: West Bengal : Darjeeling dist., Darjeeling 23.05.1985. *J. P. Ghosh* 59825, 59830; Phallut 3550 m; Rimbick 2200 m; Batasi 2150 m; Sandakphu Tonglu 2800-3550 m; Darjeeling Senchal 2150-2400 m; Batasi Palmazoa 2150-2300 m.

124. F. neurota Tayl.

Distrib.: West Bengal : Darjeeling 2000-2200 m; Phallut 3550 m; Ranjit Tea Garden, Lloyod Botanic Garden (Darjeeling) 2285 m; Batasai 2200 m; Kurseong.

125. F. physantha Matt.

Distrib.: West Bengal : Tiger hill 2500 m; Lloyod Botanic Garden 2280 m; Darjeeling 2000-2200 m; Rimbick 2200 m; Phallut 3550 m.

126. F. retusa Mitt.

Distrib.: West Bengal : Manaebhanjan 2000 m, 19.05.1985. *J. P. Ghosh* 59802; Gauribas, 23.05.1985. *J. P. Ghosh* 59824; Senchal Tiger hill 2400-2500 m; Sandakphu Tonglu 2800-3500 m.

127. F. schensiana Mitt.

Distrib.: West Bengal : Darjeeling dist., Senchal 2400-2500 m; *J. P. Ghosh* 59824; Sandakphu Phallut 2800-3550 m..

128. Frullania sharpantha Udar & Kumar

Distrib. : West Bengal : Darjeeling dist., Darjeeling 2000 m; Tonglu 2800.

JUBULA Dumort.

129. Jubula hutchinsiae (Hook.) Dumort.

Distrib. : West Bengal : Senchal 2300 m.

130. J. hattorii Udar & Nath

Distrib. : West Bengal : Darjeeling 2000 m; Tonglu 2800 m.

LEJEUNEACEAE

ARCHILEJEUNEA (Spruce) Schiffn.

131. Archilejeunea planiuscula (Mitt.) Steph.

Distrib. : West Bengal : Burdwan.

132. A. mariana Verdoorn

Distrib. : West Bengal.

CHEILOLEJEUNEA (Spruce) Schiffn.

133. Cheilolejeunea giraldiana (Mass.) Mizut.

Distrib. : West Bengal : Senchal 2400 m; Tiger hill 2500 m.

134. C. laeviscula (Mitt.) Steph.

Distrib. : West Bengal : Darjeeling Mungpoo 2000 m.

135. C. subopaca (Mitt.) Mizut.

Distrib. : West Bengal : Senchal Tiger hill 2400-2500 m; Phallut 3550 m; Sandakphu Tonglu 2800-3350 m; Darjeeling Senchal 2150-2500 m.

COLOLEJEUNEA (Spruce) Schiffn.

136. Cololejeunea minutissima (Smith.) Schiffn.

Distrib. : West Bengal : Darjeeling dist., Garibas Tonglu 2800-3000 m.

137. Cololejeunea producta (Mitt.) Hatt.

Distrib. : West Bengal : Darjeeling dist., Phallut 3550 m.

138. C. spinosa (Horik.) Hatt.

Distrib. : West Bengal : Mungpoo 1350 m; Darjeeling 2000 m; Takdah 1600-1700 m.

COLURA Dumort.

139. Colura calyptrifolia (Hook.) Dumort.

Distrib. : West Bengal : Darjeeling 2000 m.

140. C. tenuicornis (Evans.) Steph.

Distrib. : West Bengal : Darjeeling 2000 m.

DICRANOLEJEUNEA (Spruce) Schiffn.

141. Dicranolejeunea gliva Steph.

Distrib. : West Bengal : Darjeeling 2000-2200 m.

142. D. sikkimensis Steph.

Distrib. : West Bengal : Darjeeling.

DREPANOLEJEUNEA (Spruce) Schiffn.

143. Drepanolejeunea angustfolia (Mitt.) Grolle

Distrib. : West Bengal : Rimbick 2000 m; Sandakphu Tonglu 2800-3550 m.

144. D. erecta (Steph.) Mzut.

Distrib.: West Bengal : Darjeeling 2000 m; Ramban 2400 m.

LEJEUNEA Libert.

145. Lejeunea boniensis Horik.

Distrib. : West Bengal : Burdwan.

146. Lejeunea flava (Sw.) Nees

Distrib. : West Bengal : Darjeeling 2000 m; Ranjit Tea Garden.

147. L. indica Udar & Awasthi

Distrib. : West Bengal : Darjeeling; Mungpoo 1280 m.

148. L. princeps (Steph.) Mizut.

Distrib. : West Bengal : Senchal 2400 m; Tiger hill 2500 m; Palmazoa Rimbick 1400-2300 m. Phallut 3550 m; Sandakphu Tonglu 2800-3550 m.

149. L. punctiformis Tayl.

Distrib. : West Bengal : Darjeeling.

150. L. wallichiana Lehm.

Distrib. : West Bengal : Darjeeling dist., Sandakphu Tonglu 2800-3550 m; Batasi 2300 m; Sandakphu - Gauribas 2800-3550 m; Darjeeling 2000 m.

151. L. wightii Lindb. (Steph.) Mizut.

Distrib. : West Bengal : Victoria falls; Palmazoa Rimbick 1400-2300 m; Batasi 2150 m; Phallut 3550 m.

LEPTOLEJEUNEA (Spruce) Schiffn.

152. Leptolejeunea himalayensis Pande & Mishra

Distrib. : West Bengal : Darjeeling dist., Mungpoo 1350 m.

153. L. sikkimnensis Steph.

Distrib. : West Bengal : Darjeeling Tiger hills 2150-2500 m; Manaebhanjan Ghum 2250 m.

154. L. subfusca (Nees) Schiffn.

Distrib. : West Bengal : Darjeeling 2000 m; Darjeeling Tiger hills 2150-2500 m.

MARCHENSINIA Gray

155. Marchensinia gigantea Steph.

Distrib. : West Bengal : Darjeeling 2000-2200 m.

156. M. sikkimensis Steph.

Distrib. : West Bengal : Darjeeling.

PTYCHANTHUS Nees

157. Ptychanthus striatus (Lehm. & Lindeb.) Nees

Distrib. : West Bengal : Senchal 2150 m; Kurseong 1550 m; Palmazoa Rimbick 1500-2500 m; Batasi 2150 m; Sandak Tonglu 2800-3550 m; Darjeeling 2000-2200 m.

RECTOLEJEUNEA A. Evans

158. Rectolejeunea subolivaceae (Steph.) Strivastava & Agarwal

Distrib. : West Bengal : Darjeeling 2000 m.

SPRUCEANTHUS Verdoorn

159. Spruceanthus semirepandus (Nees) Verdoorn

Distrib. : West Bengal : Darjeeling 2000-2200 m; Victoria falls 1960 m; Sandakphu Tonglu 2800-3550 m; Senchal Tiger hills 2400-2500 m.

TROCHOLEJEUNEA Schiffin.

160. Trocholejeunea infuscata (Mitt.) Verdoorn

Distrib. : West Bengal : Darjeeling 2000-2200 m; Darjeeling Senchal 2150-2500 m; Senchal Tiger hill 2400-2500 m; Takdah 1600-1700 m; Palmazoa - Rimbick 2000-2300 m; Phallut 3550 m.

TUZIBEANTHUS Hatt.

161. Tuzibeanthus chinensis (Steph.) Mizut.

Distrib. : West Bengal : Darjeeling 2000-2200 m.

METZGERIALES

TREUBIACEAE

APOTREUBIA Hatt. & Mizut.

162. Apotreubia nana (Hatt. & Inoue) Hatt. & Mizut.

Distrib. : West Bengal : Darjeeling area.

FOSSOMBRONIACEAE

FOSSOMBRONIA Raddi

163. Fossombronia himalayensis Kashyap

Distrib. : West Bengal : Darjeeling 2000 m.

PELLIACEAE

PELLIA Raddi

164. Pellia endivaefolia (Dicks.) Dum.

Distrib. : West Bengal : Darjeeling 2000 m.

165. P. epiphylla (L.) Corda

Distrib. : West Bengal : Darjeeling 2000 m.

166. P. neesiana (Gott.) Limpr.

Distrib. : West Bengal : Sandakphu Tonglu 2500-2800 m.

ALLISONIACEAE

CALYCULARIA Mitt.

167. Calycularia crispula Mitt.

Distrib. : West Bengal : Darjeeling dist., on the way Manaebhanjan to Batasi 2000 m. 20.06.1985. *J. P. Ghosh* 59804; Darjeeling common.

PALLAVICINIACEAE

PALLAVICINIA Gray

168. Pallavicinia himalayensis Schiffn.

Distrib. : West Bengal : Kurseong 1550 m.

ANEURACEAE

RICCARDIA Gray

169. Riccardia decolyana (Schiffn.) Pande & Srivastava

Distrib. : West Bengal : Kurseong 1550 m.

170. R. palmatiformis Schiffn.

Distrib. : West Bengal : Kurseong 1440 m.

171. R. sikkimensis (Steph.) Pande & Srivastava

Distrib. : West Bengal : Darjeeling 2000 m; Manaebhanjan 2000 m.

172. R. tenuicostata Schiffn.

Distrib. : West Bengal : Darjeeling 2000 m.

173. R. villosa (Steph.) Pande & Srivastava

Distrib. : West Bengal : Darjeeling 2000 m; Tonglu 2800 m.

METZGERIACEAE

METZGERIA Raddi

174. Metzgeria conjugata Lindl.

Distrib. : West Bengal : Tiger hill 2800 m; Tonglu Dakbunglaw 3300 m; Kurseong 1550 m.

175. M. consanguinea Schiffn.

Distrib. : West Bengal : Tiger hill 2800 m; Tonglu Dackbunglaw 3300 m; Kurseong 1550 m.

176. Metzgeria darjeelingensis Kuwahara

Distrib. : West Bengal : Darjeeling area, Tonglu Dakbunglaw 3200 m.

177. M. decipiens (Massal.) Schiffn. & Gott.

Distrib. : West Bengal : Darjeeling area 1450 m; Kurseong 1500 m.

178. M. furcata (L.) Dumort.

Distrib. : West Bengal : Darjeeling Senchal 2000-2400 m; Tiger hill.

179. M. hamata Lindb.

Distrib. : West Bengal : Between Darjeeling and Teesta Bridge 1450 m; Rambi forest near Darjeeling 1600 m. Chittra above Manaebhanjan 2100 m; Tonglu Dakbunglow 3100 m.

180. M. longitexta Steph.

Distrib. : West Bengal : Senchal 2000 m.

181. M. macrospora Kuwahara

Distrib. : West Bengal : Sandakphu Dakbunglow 3500 m. Darjeeling 2000 m.

182. M. madagassa Steph.

Distrib. : West Bengal : Kurseong 1550 m.

183. M. macrocelulosa Kuwashra

Distrib. : West Bengal : Ranbi forest near Darjeeling 1500 m; Manaebhanjan 2000 m; Sandakphu Tonglu 2500-2800 m.

APOMETZGERIA Kuwarhara

184. Apometzgeria pubescens (Schrank) Kuwahara

Distrib. : West Bengal : Phallut 3550 m.

185. A. pubescens var. **kinabaluensis** Kuwahara

Distrib. : West Bengal : Phallut 3550 m.

MARCHANTIALES

TARGIONIACEAE

TARGIONIA L.

186. Targionia hypophylla L.

Distrib. : West Bengal : Darjeeling 2000 m; Ghum; Birch hill.

CYATHODIACEAE

CYATHODIUM Kunze

187. Cyathodium aureonitens (Girff.) Mitt.

Distrib. : West Bengal : Kolkata.

188. C. denticulatum Udar & Srivastava

Distrib. : West Bengal : Darjeeling 2000 m.

189. C. tuberculatum Udar & Singh

Distrib. : West Bengal : Darjeeling 2000 m.

190. C. tuberosum Kashyap

Distrib. : West Bengal : Darjeeling 2000 m.

LUNULARIACEAE

LUNULARIA Adans.

191. Lunularia cruciata (L.) Dumort.

Distrib. : West Bengal : Darjeeling. Common.

WIESNERELLACEAE

WIESNERELLA Schiffn.

192. Wiesnerella denudata (Mitt.) Steph.

Distrib. : West Bengal : Senchal Tiger hill 2400-2500 m.

CONOCEPHALACEAE

CONOCEPHALUM Hill

193. Conocephalum conicum Dumort.

Distrib. : West Bengal : Darjeeling 2000 m.

194. C. japonicum (Thunb.) Grolle

Distrib. : West Bengal : Darjeeling 2000 m.

AYTONIACEAE

ASTERELLA P. Beauv.

195. Asterella angusta (Steph.) Kachroo

Distrib. : West Bengal : Darjeeling 2000 m.

196. A. khasiana (Griff.) Pande, Srivastava & Khan

Distrib. : West Bengal : Darjeeling 2000 m; Kurseong 1550 m.

197. A. leptophylla (Mont.) Grolle

Distrib. : West Bengal : Darjeeling; Phallut 3550 m.

PLAGIOCHASMA Lehm. & Lindenb.

198. Plagiochasma appendiculatum Lehm. & Lindenb.

Distrib. : West Bengal : Kolkata; Darjeeling 2000 m.

199. P. pterospermum Mass.

Distrib. : West Bengal : Kolkata; Darjeeling 2000 m.

REBOULIA Raddi

200. Reboulia hemisphaerica (L.) Raddi

Distrib. : West Bengal : Darjeeling 2000 m; Kurseong 1550 m; Sukia Pokhari 2300 m, 28.05.1985. *J. P. Ghosh* 59858.

MARCHANTIACEAE

DUMORTIERA Nees

201. Dumortiera hirsuta (Sw.) Nees

Distrib. : West Bengal : Darjeeling 2000 m; Tiger hill; Birch hill. Common.

202. D. hirsuta (Sw.) Nees var. **nepalensis** (Tayl.) Frey

Distrib. : West Bengal : Tiger hill 2500 m.

MARCHANTIA L.

203. Marchantia geminata Nees

Distrib. : West Bengal.

204. M. linearis Lehm. & Lindenb.

Distrib. : West Bengal.

205. M. paleacea Bert.

Distrib. : West Bengal : Kolkata; Ghum Senchal 2250 m; Kurseong 1550 m; Takdah 1700 m; Darjeeling 2000 m.

206. M. palmata Nees

Distrib. : West Bengal : Teesta river & Sevak bridge, 07.06.1985. *J. P. Ghosh* 59880; Road side of Manaebhanjan 2000 m, 27.05.1985. *J. P. Ghosh* 59848; Kurseong 1550 m.

207. M. papulosa Amak.

Distrib. : West Bengal : Senchal Ghum 2000-2400 m; Takdah 1600-1700 m.

208. M. polymorpha L.

Distrib. : West Bengal : Manaebhanjan to Batasi 2000 m, 20.05.1985. *J. P. Ghosh* 59807; Darjeeling area.

209. M. togashii Amak.

Distrib. : West Bengal : Lopchu 1500 m; Darjeeling.

RICCIACEAE

RICCIA L.

210. Riccia billardieri Mont. & Nees

Distrib. : West Bengal : Darjeeling; very common in Indian Botanic Garden; Burdwan.

211. R. ciliata Hoffm.

Distrib. : West Bengal.

212. R. crystalliana L.

Distrib. : West Bengal.

213. R. frostii Aust.

Distrib. : West Bengal.

214. R. gangetica Ahmed

Distrib. : West Bengal : Burdwan.

215. R. huebeneriana Lindb.

Distrib. : West Bengal : 7 miles from Darjeeling 2000 m; Bedamtom.

216. R. sorocarpa Bisch.

Distrib. : West Bengal : Darjeeling Phallut around Dakbunglow 3200-3550 m.

ANTHOCEROTALES

ANTHOCEROTACEAE

ANTHOCEROS L.

217. Athoceros cripulus (Mont.) Douin

Distrib. : West Bengal : Burdwan.

218. A. crectus Kashyap

Distrib. : West Bengal : Darjeeling 2000 m.

PHAEOCEROTACEAE

MEGACEROS Campb.

219. Megaceros tjibodensis Campb.

Distrib. : West Bengal : Darjeeling area near Mongpoo 2000 m; Senchal Ghum 2100-2400 m; Manaebhanjan 2100 m.

NOTOTHYLACEAE

NOTOTHYLAS Sull.

220. Notothylas indica Kashyap

Distrib. : West Bengal : Indian Botanic Garden; Burdwan; Naihati.

221. N. levieri Schiffn. ex Steph.

Distrib. : West Bengal.

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पश्चिम बंगाल के हेपाटिक्स की प्रारम्भिक जांच सूची

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भारतीय वनस्पति सर्वेक्षण

सार संक्षेप

पश्चिम बंगाल की हेपाटिक्स की जांच सूची उपलब्ध करवाई गई है । यह सूची मुख्यत: प्रकाशित पुस्तकों पर आधारित है व लेखक द्वारा किए गए कुछ संग्रह के साथ इसे केन्द्रीय रा-ट्रीय पादपालय में रखा गया है । पश्चिम बंगाल में हेपाटिक्स की 35 कुल 3 जेनेरा व 221 जातियां है । यह आशा की जाती है कि पश्चिम बंगाल के विभिन्न जिलों में और आगे खोज करने पर इसकी जातियों की संख्या में वृद्धि हो सकती है । उपलब्ध सूचना के अनुसार हिमालय के दार्जिलिंग क्षेत्र में 5 जातियां दुर्लभ और 20 जातियां स्थानिक है ।