

A Provisional and Explanatory Key to the Moss Families Recorded from Thailand

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This key is basically derived from the work of E. B. Bartram [Mosses of the Philippines, *The Philippine Journal of Science* 68 (1-4), 1939, and reprinted by Otto Koeltz, Koenigstein-Taunus, 1972] and modified for use in Thailand. It is of a provisional nature, but includes all the main families so far recorded from Thailand. Suggestions and amendments are welcomed. *Sections in brackets () may sometimes be omitted if problematic.*

Division BRYOPHYTA

Class BRYOPSIDA (Musci)

Key to families

1. Gametophyte (stem and leaves) development rudimentary, primarily consisting of a persistent brownish protonema, dichotomously branched, with leaf development only around male and female sexual organs; usually on leaves of flowering plants (epiphyllous) NEMATACEAE (*Ephemeropsis tjobodensis* Goeb.)
Gametophyte well developed 2
2. Leaves in 2 opposite rows (distichous), bases overlapping (equitant)
FISSIDENTACEAE
Leaves in 2 or more rows, sometimes flattened into 1 plane (complanate), but never distichous 3
3. Branches in short bunches (fascicles), leaf cells in 1 layer, but of 2 types, large and transparent (hyaline) and long, narrow chlorophyll-bearing; peat mosses
SPHAGNACEAE
Branches not in fascicles, leaf cells of usually 1 type (chlorophyll-bearing), but if 2 types present, in more than 1 layer or with hyaline cells at leaf base 4
4. Leaf blade nearly all midrib (costa), with 3 or more layers of cells and 2 cell types, hyaline and chlorophyll-bearing
LEUCOBRYACEAE
Midrib usually narrower, at least in lower part of leaf, and cells in upper part of leaf of 1 type, chlorophyll-bearing 5
5. Central part of leaf base formed of large, empty cells
CALYMPERACEAE
Central part of leaf base not so differentiated 6

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6. Leaves with longitudinal plates or sheets (lamellae) on inner leaf
POLYTRICHACEAE
Leaves without lamellae (7) 9
7. Peristome teeth (fringe of teeth surrounding mouth of capsule) solid, and not or faintly crossbarred and /or 2 cm plant with long narrow, fragile acuminate leaves distinctly bordered by 1-3 rows of very small cells, on damp limestone rock 8
Peristome teeth thin, transversely barred and flexible 9
8. Capsule regular, calyptra (membranous hood covering lid of capsule) large, densely pilose POLYTRICHACEAE
Capsule irregular, calyptra small, conical, 2 cm plant, with long, narrow, fragile acuminate leaves, distinctly bordered by 1-3 rows of very small cells, on damp limestone rock DIPHYSCIACEAE (*Diphyscium calcareum* Dix.)
9. Stems usually erect, dichotomously branched, the seta (the stalk supporting the capsule) usually terminal (but not in 20b.) on stem or leafy branch (acrocarpous mosses) 10
Stems usually creeping, often pinnate or much branched, the seta lateral on the main stem or a secondary branch (pleurocarpous mosses) 21
10. Calyptra (membranous hood covering lid of capsule), large, bell-shaped (campanulate), often pilose 11
Calyptra small, in the form of a hood 12
11. Leaves with a single midrib (costa) ORTHOTRICHACEAE
Leaves with no midrib (costa) ERPODIACEAE
12. Peristome (fringe of teeth surrounding mouth of capsule) single (1 ring) or absent 13
Peristome double (2 rings) 16
13. Peristome teeth broad at base, entire (margin undifferentiated) or cleft above 14
Peristome teeth divided into 32 threads 15
14. Leaf cells firm, alar cells (cells at basal angles of leaf) distinct, peristome teeth cleft above DICRANACEAE
Leaf cells lax, alar cells not distinct, peristome teeth entire FUNARIACEAE

28. Branches julaceous (catkin-like), leaf tuberculate on dorsal side
 LEUCODONTACEAE
 Branches not julaceous, leaf cells covered with papillae (small protuberances)
 29
29. Capsule ovoid (like a chinese lantern), completely inserted HEDWIGIACEAE
 Capsule never so distinctly ovoid, exserted on a well developed seta 30.
30. Stems prostrate, pinnate or bi- and tripinnate, stem and branch leaves different
 THUIDIACEAE
 Stems pendulous or ascending, irregularly branched 31
31. Slender plants, stems flexuose and pendulous METEORIACEAE
 Robust plants, stems rigid TRACHYPODACEAE
32. Stems often regularly pinnate, leaves usually strongly flattened in one plane
 (complanate) NECKERACEAE
 Stems irregularly branched, leaves not complanate 33
33. Cells in upper part of leaf short, with broad cells joined end to end and not
 dove-tailed 34
 Cells in upper part of leaf elongate, dove-tailed 35
34. Capsules ovoid, immersed, seta very short CRYPHAEACEAE
 Capsules exserted on long seta LESKEACEAE
35. Alar cells (cells at the basal angle of the leaf) not strongly differentiated
 BRACHYTHECIACEAE
 Alar cells well defined 36
36. Leaves ovate, short pointed PLAGIOTHECIACEAE
 Leaves long and fine acuminate AMBLYSTEGIACEAE
37. Leaves transversely undulate, strongly flattened in one plane (complanate)
 NECKERACEAE
 Leaves not as above (38) 39
38. Capsules ribbed PTYCHOMNIACEAE
 Capsules not ribbed 39
39. Capsules densely covered with small spines SYMPHYDONTACEAE
 Capsules not so covered 40

40. Alar cells (cells at the basal angle of the leaf) sharply defined, often large and inflated 41
 Alar cells few, inconspicuous 44
41. Leaves deeply cochleariform, apex like a hood PTEROBRYACEAE
 Leaves more or less concave, apex not like a hood 42
42. Alar cells numerous, colourless, capsules cylindric, erect ENTODONTACEAE
 Alar cells thickened or coloured, capsules ovoid 43
43. Primary stems with slender, creeping microphyllous stems (stoloniferous) alar cells numerous, thickened MYURACEAE
 Primary stems not stoloniferous, alar cells few, large, often inflated SEMATOPHYLLACEAE
44. Mostly soft plants, forks of leaf midrib (costa) usually long, calyptra (membranous hood covering lid of capsule) large, hairy HOOKERACEAE
 Forks of leaf midrib (costa) short, calyptra like a hood 45
45. Leaves with longitudinal folds (plicate) or, if not plicate, rigid and woody PTEROBRYACEAE
 Plants not as above 46
46. Leaf cells very wide, lax HYPNACEAE
 Leaf cells firm, narrow, elongate 47
47. Leaves strongly flattened in one plane (complanate) 48
 Leaves not complanate 49
48. Leaves with edges extending down the stem (decurrent), cells smooth PLAGIOTHECIACEAE
 Leaves not decurrent HYPNACEAE
49. Robust, rigid plants, stems copiously branched HYLOCOMIACEAE
 Smaller plants, stems often regularly pinnate HYPNACEAE

A simple guide to the moss plant will be found on Page 61.

ARTIFICIAL AND SIMPLE GUIDE TO THE MOSS PLANT FOR USE WITH KEY

