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Taxonomic Studies of Asiatic Species of Aneuraceae (Hepaticae). V. *Riccardia planiflora* (Steph.) Hatt. var. *aequatorialis* Furuki var. nov.

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Abstract *Riccardia planiflora* (Steph.) Hatt. var. *aequatorialis* Furuki var. nov. is described as a new variety. It differs from the type variety by its dioicous sexuality. It is distributed in southeast Asia.

Kew words: Hepaticae, new variety, *Riccardia planiflora* var. *aequatorialis*.

Riccardia planiflora (Steph.) Hatt. was described from Japan by Stephani (1917) under the genus *Aneura*, and Hattori (1944) transferred it to the genus *Riccardia*. It is distributed in Japan (Furuki, 1991) and the Himalayas (Furuki and Higuchi, 1995). The sexuality of this species was originally described as dioicous by Stephani (1917). However, Mizutani and Hattori (1957) amended it to monoicous, and described that male branches, which were difficult to find, were present in 10 of 54 specimens. Later Furuki (1991) pointed out that they might have overlooked the paroicous branches, and concluded that it was a heteroicous plant, having male, female and paroicous branches. During study of the Asiatic species in Aneuraceae I found dioicous plants similar to this species, and here I describe them as a new variety.

Materials and Methods

The methods and measurements used for description follow those of Furuki (1991).

Taxonomy

Riccardia planiflora (Steph.) Hatt. var. *aequatorialis* Furuki var. nov.

(Fig. 1)

Affinis Riccardiae planiflorae var. planiflorae, sed differt plantis dioiciis sexualibus.

Typus. Thailand, Payap, granitic massive Doi (Mt.) Inthanon, hill evergreen forest, on tree trunks and twigs in undergrowth, 20 Dec. 1965, 2150–2200 m alt., coll. A. Touw 10073 (L).

Morphology. Thallus small, brown in herbaria, smooth in surface, truncate at apices, entire and flat along margin, regularly pinnately to tripinnately branched, having rather developed pinnae; epidermal cells nearly the same size as inner ones, with remarkable, larger trigones in cross section. Geotropical stolons rare. Main axis prostrate, to 7 mm long, 0.3–0.5 mm wide; cross sections elliptical to plano-convex, 4–7 cells (75–125 μm) thick, obtuse to acute at margin. Ultimate branches prostrate to ascending, to 1.5 mm long, 0.2–0.4 mm wide; cross sections linear to plano-convex, 4–5 cells (75–100 μm) thick, obtuse to acute at margin. Epidermal cells of thallus polygonal, 20–38×13–25 μm, irregular in size, 1/3–1/2 the inner cell in size, thick-walled. Inner cells 60–85×25–40 μm. Oil bodies of cells unknown. Mucilage hairs in 2 rows on ventral surface of thallus. Rhizoids scattered on prostrate thallus. Gemmae rare.

Dioicous. Male branches lateral on main axis or base of primary branches, horizontal, not branched, 200–250 μm wide, 150–220 μm thick, 4–10 pairs of chambers; lateral wing obliquely to widely spreading. Female branches lateral on main axis, scarcely descending; paraphyses fringed scale-like, 5–10 cells (100–170 μm) high. Calyptrae 1.2 mm long, 0.6 mm wide, covered with unicellular papillae at just before maturity.

Sporophytes unknown.

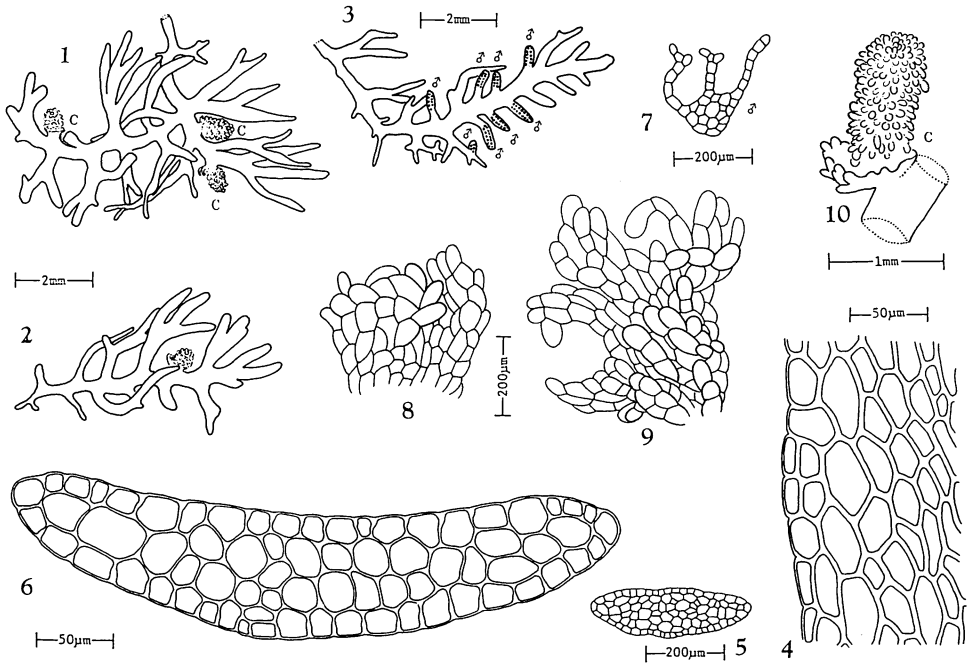

Fig. 1. *Riccardia planiflora* (Steph.) Hatt. var. *aequatorialis* Furuki. 1, 2, female thalli with calyptrae (c). 3, male thallus. 4, marginal cells of ultimate branch. 5, cross-section of main axis. 6, cross-section of ultimate branch. 7, cross-section of male branch. 8, 9, paraphyses of female branches. 10, calyptra. All were drawn from the holotype.

Habitat. On rocks, fallen logs, tree trunks and branches.

Distribution Range. Thailand, Malaysia (Borneo) and Indonesia (Java).

Specimens examined. THAILAND. Payap, granitic massive Doi (Mt.) Inthanon, A. Touw 9774 and 10124 (L). MALAYSIA. Borneo, Sabah, Mt. Kinabalu; 11000 ft, G.Shea 2738 (NICH). INDONESIA. Java Orient, Res, Pasoeroean, G. Kawi, in silvis primig, 1800–2200 m alt., Fr. Verdoorn 37 (L).

Remarks. This new taxon is characterized by (1) small thalli, (2) pinnate to tripinnate thalli, (3) very thick-walled cells, (4) remarkable trigones seen in cross-sections of the thallus, (5) obtuse to acute margins in cross-sections of the thallus, (6) truncate apices of the thallus, (7) calyptrae covered with unicellular papillae and (8) dioicous sexuality.

The most diagnostic characteristics of this taxon mentioned above agree with those of *Riccardia planiflora* var. *planiflora,* but the present new taxon differs from the latter in the sexuality of the plants. Var. *aequatorialis* is dioicous, whereas var. *planiflora* is heteroicous (Furuki, 1991), and is smaller than the latter on the basis of the size of the plants, cells and so on.

The sexuality of species of the genus *Riccardia* is dioicous or monoicous (autoicous or heteroicous). I have discussed the taxonomic value of sexuality in this genus, and distinguished dioicous and monoicous plants at the varietal level (Furuki, 1991). Similarly the present new taxon should be treated as a variety of *Riccardia planiflora.*

This taxon is also similar to *Riccardia crassiretis* Schiffn. described from Sumatra, in having thick-walled cells, but differs from the latter in the cross-section of the thallus. The former has large trigones, an obtuse to acute margin, and is several cells thick, whereas the latter has indistinct trigones, a winged margin and is only 3 cells thick.

Acknowledgments

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References

Furuki, T. 1991. A taxonomical revision of the Aneuraceae (Hepaticae) of Japan. J. Hattori Bot. Lab. (70): 293–397.

Furuki, T. and M. Higuchi. 1995. Hepatics from Nepal collected by the botanical expedition of the National Science Museum, Tokyo in 1988. 2. Metzgeriales and Marchantiales. *In* Watanabe, M. and H. Hagiwara (eds.), Cryptogams of the Himalayas 3. Nepal and Pakistan, pp. 143–149. National Science Museum, Tsukuba, Tsukuba.

Hattori, S. 1944. Contributio ad floram Hepaticarum austro-Kiushiuensem. Bull. Tokyo Sci. Mus. 11: 1–203. (In Japanese)

Mizutani, M. and S. Hattori. 1957. An etude on the genus *Riccardias*. J. Hattori Bot. Lab. (18): 27–64.

Stephani, F. 1917. *Aneura* Dum. *In* Species Hepaticarum VI, pp. 19–46. Georg, Geneva.

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アジア産スジゴケ科の分類学的研究 V. ヒメテングサゴケの 1 新変種

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タイ類スジゴケ科ヒメテングサゴケの 1 変種 *Riccardia planiflora* (Steph.) Hatt. var. *aequatorialis* Furuki を記載した．本変種は基本種とは植物体の雌雄性が異なる．すなわち，基本種は雌雄混立同株であるが，本変種は雌雄異株である．基本種は日本及びヒマラヤに分布するが，本変種はタイやボルネオ，ジャワに分布する．