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A New Species of Neodilsea: *Neodilsea tenuipes* Yamada et Mikami

By

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Frons solitaria vel caespitosa, disco parvissimo adfixa, obovata vel oblonga, plerumque 19–24 cm. alta, 9.5–14 cm. lata sed interdum ca. 29.5 cm. alta, 16 cm. lata, tenuiter membranacea, plana, basi brevissime stipitata, sursum late cuneatim vel subito dilatata, 300–550 μ crassa, margine integra vel raro lobata; corticibus ex 5–7 cellulis, interioribus majoribus, exterioribus sensim minoribus; filamentis medullaribus densis, ca. 5–7 μ crassis; ramis carpogonii ex 8–12 cellulis compositis, distincte curvatis; tetrasporangiis oblongo-obovatis, per frondem sparsis, in exteriore parte strati corticalis immersis, ca. 35×45 μ, oblique cruciatim divisis; antheridiis ignotis. Specimina exsiccatione firme chartae adharent.

Japanese name: Maruba-akaba (nov.).

Loc.: Samani and Horoman, Hidaka Prov., Hokkaido. (The type specimen is deposited in the Herbarium of the Faculty of Science, Hokkaido University.); Kombumori and Akkeshi, Kushiro Prov., Hokkaido.

Frond solitary or caespitose, attached to the substratum by means of a very small disc, obovate or oblong in outline, usually 19–24 cm. long, 9.5–14 cm. wide, but large ones attaining the height of 29.5 cm. and the width of 16 cm, thinly membranous, plain, with a very short stipe (scarcely exceeding 5 mm. in length) at the base, spreading upwards broadly-cuneately or more suddenly, 300–550 μ thick, at the margin entire or rarely lobed; cortical layer composed of 5–7 rows of cells, the outermost ones coloured and small, becoming larger inward; medullary filaments dense, about 5–7 μ thick; carpogonial branches composed of 8–12 cells, distinctly curved; tetrasporangia oblong-obovate in shape, scattered over the frond, situated between the superficial cuticle and the outer part of the cortical filaments, ca. 35–45 μ, obliquely cruciately divided; antheridia unknown; specimens firmly adhering to paper in drying.

The tissue is composed of 3 layers, cortical, subcortical and medullary. The cortex is composed of 3–4 rows of small, ellipsoidal cells, arranged closely perpendicular to the surface. The subcortical layers are composed of 2 parts, outer and inner, the inner layer of 1–2 rows of larger flattened cells, joining with the medullary filaments by plasmic threads. The carpogonial branch is about 8–12 (–14)-celled, the fourth cell from the top being usually the largest and the fifth being second in size. The lower 3 or 7 cells of the branch are

Fig. 1. *Neodilsea tenuipes* YAMADA et MIKAMI. × 1/2

rather small, often with short or long branchlets. Carpogonia with a long irregularly twisted trichogyne are abundantly observed, but the writer could not observe the development of the gonimoblasts. The auxiliary cell branches are composed of about ten cells. They arise from cells of the inner cortex. All the specimens were found cast ashore, attached to a small piece of stone. The specimens with the tetrasporangia or the carpogonial branches and auxiliary cells were collected in the month of September, 1952, at Horoman and Samani, Hidaka Prov. Hokkaido, though sterile ones had been collected in Kushiro Province, Hokkaido. In 1942, TOKIDA established one new genus, *Neodilsea* in the Dumontiaceae, basing on an alga which had been passed among the Japanese phycologists as *Dilsea edulis* STACKH. since the naming by the late Prof. K. YENDO. TOKIDA distinguished it from *Dilsea* by the mode of development of the tetrasporangia, and by several other characters. According to him the tetrasporangia of *Neodilsea* are formed "as a side branch on the lower cell of the anticlinal cortical filaments, and are thus not intercalary but

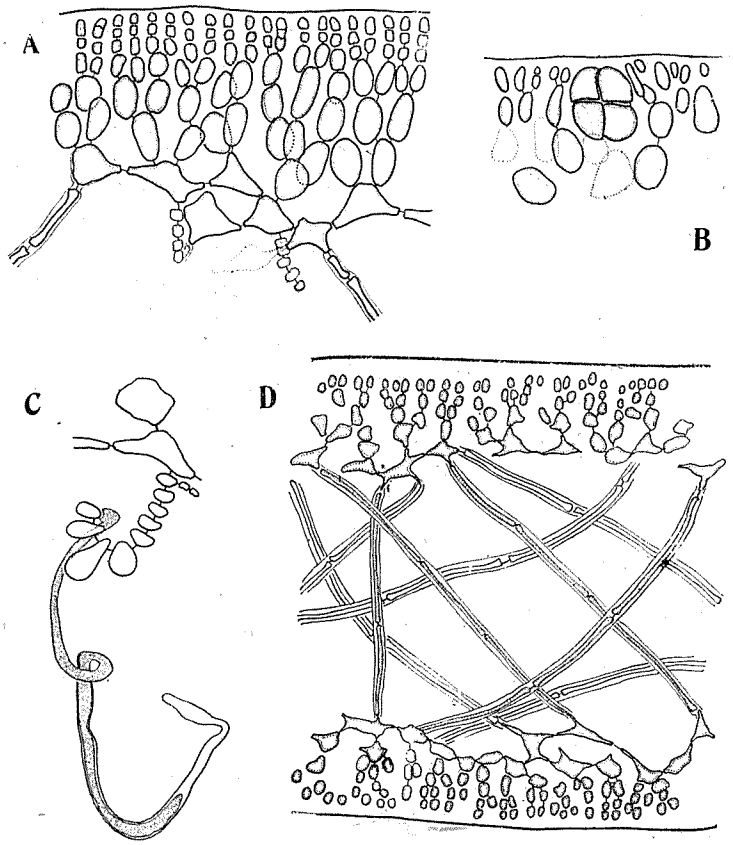

Fig. 2. A. Cross section of a female plant, showing two young auxiliary-cell branches. × 260.
B. Cross section of a tetrasporophyte, showing a tetrasporangium. × 250.
C. A carpogonial branch with trichogyne. × 250.
D. Longitudinal section of frond. × 140.

apical" and "situated just beneath the superficial cuticle, between the outer part of the cortical filaments, scattered over the frond being not confined to patches". In the Genus *Neodilsea* there has been described only one species, *Neodilsea Yendoana* TOKIDA. Judging from the description and figures of *N. Yendoana* TOKIDA given by TOKIDA, the present species seems to stand very near to it. But, one of the peculiar characteristics of the present species is the roundish frond with a very minute stipe, so that the writer proposes to name it *Neodilsea tenuipes*. Furthermore, another distinguishing feature of this species is the thin membranous plain (not wrinkled) frond with undulating margin. In the above mentioned respects, the present species is easily distinguishable from *N. Yendoana* TOKIDA.