

*Ramalina kurokawae* Kashiw., a New Lichen  
Species from Japan

By

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**Abstract** *Ramalina kurokawae* Kashiw. is described from Japan as new to science. It is so far known from Japan and China.

In the course of reviewing *Ramalina* collections from Japan and China, I have found an undescribed species of *Ramalina*. It resembles *R. almquistii* Vainio, a saxicolous species found in Japan, Aleutian Islands and Saghalien, but differs in having soredia and producing evernic and obtusatic acids as main chemical substances. I gave the name *R. kurokawae* Kashiw. for this taxon and provide description herein. The species is named in honor of Dr. Syo Kurokawa (Botanic Gardens of Toyama) for his major contributions to lichenology over the past four decades.

The specimens used for the present study are preserved in the herbarium of the National Science Museum, Tokyo (TNS). The secondary products of the specimens examined were identified by the thin layer chromatography (TLC) using the amended procedures of Culberson & Johnson (1982). To evaluate anatomical variation within the thallus and apothecia, sections were cut by hand with a razor blade. These were mounted in lactophenol-cotton blue solution. The anatomy and spores were observed with standard light microscopic procedures.

***Ramalina kurokawae* Kashiw., sp. nova**

(Fig. 1)

Affinis *Ramalina almquistii*, sed thallo sorediato et acidum evernicum et acidum obtusaticum continenti differt.

Type collection: Japan. Kyushu. Prov. Bungo: Mt. Monjusen, Kunisaki Peninsula. On rock. November 14, 1962, S. Kurokawa 62425 (holotype in TNS). Chemistry (TLC): evernic acid, obtusatic acid and usnic acid.

Thallus saxicolous, decumbent, caespitose, forming a tuft up to 2 cm high, densely and intricately branched without distinct main branches. Branches yellowish green, often turning black near the base, hollow, irregularly inflated to subterete, 0.1–0.5 mm thick, irregularly compressed in older parts and in forks, nodulose, usually ending in granular (60–100  $\mu$ m diam.) soredia. Soralia termi-

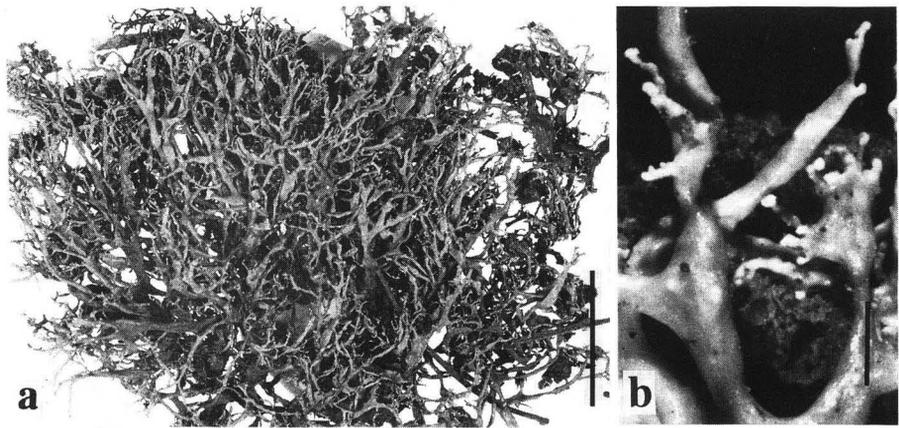


Fig. 1. Holotype of *Ramalina kurokawae* Kashiw. (*Kurokawa 62425*, TNS). a) part of holotype (scale=1 cm). b) granular soralia on the tips of branchlets (scale=0.5 mm).

nal, soredia granular. Pseudocyphellae absent. Thallus 100–500  $\mu\text{m}$  thick; cortex distinct, 10–15  $\mu\text{m}$  thick; chondroid tissue cracked, 25–70  $\mu\text{m}$  thick; medulla discontinuous, forming clusters of hyphae. Apothecia not seen.

Chemistry: evernic acid, obtusatic acid and usnic acid (no chemical race found).

*Ramalina kurokawae* resembles *R. almquistii* Vainio, a saxicolous species reported from Aleutian Islands, Saghalien and Japan, in having a similar nodulose thallus with discontinuous medullary hyphae and clearly cracked chondroid tissue. However, it is easily distinguished from the latter by the presence of soredia and by the chemistry; *R. almquistii* does not produce soredia and contains sekikaic or divaricatic acid as a main chemical substance. In addition, *Ramalina kurokawae* grows on exposed rocks in lowland (less than 700 m above sea level) of Japan, whereas *R. almquistii* found on rather shaded rocks in subalpine and alpine regions. This species might be confused with *R. exilis* Asah., a saxicolous species from Japan, from which it can be distinguished by the hollow branches and by the production of depsides in the medulla.

*Ramalina kurokawae* is so far known from Japan and China.

Specimens examined. Japan. Hokkaido. Prov. Kitami: Momo-iwa, Rebun Island, Rebun-gun. On rock, elevation about 70 m, August 10, 1970, *H. Kashiwadani 8224* (TNS). Oki Islands. Prov. Oki: Fukuura, Goka-mura. On rocks, elevation about 3 m, December 1, 1984, *H. Kashiwadani 21027* (TNS). Prov. Bitchu: Gohkei Gorge, Sohja-city. On rocks; elevation about 250 m. May 9, 1981, *H. Kashiwadani 16774* (TNS). Prov. Aki: Mt. Kamakuraji, Takata-gun. On rock, elevation about 500 m. May 17, 1970, *H. Kashiwadani 7456* (TNS); Sandankyo Gorge, Yamagata-gun. On rocks, elevation about 640 m, September 9, 1972, *H. Kashiwadani 6257* (TNS); Mt. Kanmuri, Saiki-gun. On rock, elevation about 700 m, June 12, 1966, *H. Kashiwadani 396* (TNS). Shikoku. Prov. Iyo: Panoramadai, Omogo. On rock, elevation 700 m, December 12, 1960, *S. Kurokawa 60111* (TNS). China. Prov. Jiangxi: Lushan. September 26, 1942, *F. Fujikawa 78* (TNS).

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### **References**

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