

Bourgeanic Acid in the Lichen *Stereocaulon tomentosum*

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Stereocaulon tomentosum Fr. (5.8 kg, apparently homogeneous) was collected in August 1955 along the railway line between Agle and Lurudal, some 200 km north of Trondheim. The identity was determined by Dr. I. Mackenzie Lamb. A voucher specimen has been deposited in the collection of the Institutt.

The ground and air dried lichen was extracted for 24 h with ether in a glass Soxhlet apparatus. After the ether extract had been concentrated to a manageable volume and filtered, it was extracted successively with sodium hydrogen carbonate, disodium carbonate, and sodium hydroxide solutions. The disodium carbonate extract weighed 5.9 g. It was treated with 50 ml of boiling petroleum, b.r. 60–70°, and filtered whilst hot. The filtrate contained 2.0 g, which were chromatographed on 60 g of silica gel with elution successively with benzene, benzene-chloroform 1:1, and chloroform. The volume of each fraction equalled the retention volume, 60 ml. The three fractions eluted with benzene and those eluted with benzene-chloroform 1:1 contained only small amounts of material. The three first fractions eluted with chloro-

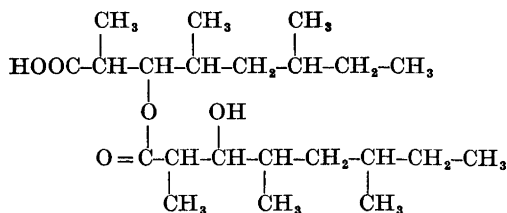
form contained 0.2, 0.9, and 0.5 g of material, respectively. The middle fraction (0.9 g) on crystallisation from petroleum and from acetone afforded crystals (157 mg) of m.p. 121–122°, $[\alpha]_D +6^\circ$ (c 1.05, chloroform, 1 dm tube).

To the extent that our experiments paralleled those described for bourgeanic acid (1) from *Desmaziera evernioides* (Nyl.) Follm. et Hun. and *Ramalina bourgeana* (Mont.),¹ identity with this acid was suggested.

Thanks to the kindness of Dr. B. Bodo a direct comparison of the two acids was possible. They appeared identical by IR and mass spectra and by mixed m.p. determination. Taken at the same time bourgeanic acid melted at 123–124°, the acid from *S. tomentosum* at 121–122°, and their mixture at 121–123°. However, under our conditions (AEI MS 902 instrument, 70 eV) neither bourgeanic acid nor the acid from *S. tomentosum* showed M^+ or $[M+1]^+$ as originally reported.¹ The molecular weight of the acid from *S. tomentosum* was arrived at by relying on the $[M-15]^+$ peak of the trimethylsilyl ether of the methyl ester of the acid.

Previous investigations of *S. tomentosum* (compare Ref. 2) have revealed the presence of atranorin, lobaric acid, and stictic acid. The present sample apparently belongs to the Chem. strain 2 of Culberson,³ since atranorin and lobaric acid were identified.

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1. Bodo, B., Hebrard, P., Molko, L. and Molko, D. *Tetrahedron Letters* **1973** 1631.
2. Culberson, C. F. *Chemical and Botanical Guide to Lichen Products*, The University of North Carolina Press, Chapel Hill 1969, p. 522.

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