

SHORT COMMUNICATION

ANTHRAQUINONES FROM THE GENUS *CALOPLACA**

GERD BOHMAN

Organic Department, Institute of Chemistry, University of Uppsala, Box 531, S-751 21 Uppsala 1, Sweden

(Received 18 February 1969)

Methods:

Extraction. Acetone.

Chromatography. Eastman "Chromagram sheets" type 6061.

Identification. Mass spectrometry and co-chromatography with authentic specimens.

Plant. *Caloplaca arenaria* (Pers.) Müll. Arg.

Uses. Not known.

Previous work. Hesse reported blastenin.¹

*Lichen mass spectrum.*² Peaks at m/e 304 (306)—100% (34%)†; 270—31%; 318 (320)—16% (6%); 284—4%.

Apothecia. 7-Chloroemodin (M 304), emodin (M 270), fragilin (M 318) and parietin (M 284).

Plant. *C. percrocata* (Arn.) Stein.

Uses. Not known.

Previous work. Hesse reported blastenin.³

Lichen mass spectrum. Peaks at m/e 318 (320)—100% (34%); 304 (306)—75% (25%); 284—8%; 270—5%.

Apothecia. Fragilin (M 318), 7-chloroemodin (M 304), parietin (M 284) and emodin (M 270).

Owing to the solubility of blastenin in Na_2CO_3 and its m.p. of about 270°C it appears to be a mixture of 7-chloroemodin (m.p. $281\text{--}282^{\circ}\text{C}$) with traces of emodin (m.p. $\approx 260^{\circ}\text{C}$).

Plant. *C. ferruginea* (Huds.) Th. Fr.

Uses. Not known.

* Part 23 in the series "Chemical Studies in Lichens"; for Part 22, see G. BOHMAN, *Acta Chem. Scand.*, in press.

† The relative intensities (per cent) give only a rough indication of the actual amounts present.

¹ O. HESSE, *J. Pract. Chem.* **58**, 485 (1899).

² Lichen sample was introduced directly into the inlet system of the mass spectrometer, as described by J. SANTESSON, *Ark. Kem.* **30**, 363 (1969).

³ O. HESSE, *J. Pract. Chem.* **63**, 549 (1901).

Previous work. None.

Lichen mass spectrum. Peaks at m/e 284—100%; 300—40%; 298—13%; 314—11%; 270—7%.

Apothecia. *Parietin* (M 284), *fallacinol* (M 300), *fallacinal* (M 298), *parietinic acid* (M 314), and *emodin* (M 270).

Plant. *C. verruculifera* (Vain.) Zahlbr.

Uses. Not known.

Previous work. None.

Lichen mass spectrum. Peaks at m/e 284—100%; 300—2%; 298—1%; 314—3%; 270—6%.

Thallus and apothecia. *Parietin* (M 284), *fallacinol* (M 300), (M 928), *fallacinal* *parietinic acid* (M 314) and *emodin* (M 270).

Plant. *C. obliterans* (Nyl.) Blomb. et Forss.

Uses. Not known.

Previous work. None.

Lichen mass spectrum. Peaks at m/e 284—100%; 300—4%; 298—4%; 314—7%; 270—7%.

Thallus and apothecia. *Parietin* (M 284), *fallacinol* (M 300), *fallacinal* (M 298), *parietinic acid* (M 314) and *emodin* (M 270).

Plant. *C. aurantiaca* (Lightf.) Th. Fr.

Uses. Not known.

Previous work. None.

Lichen mass spectrum. Peaks at m/e 284—100%; 300—2%; 298—3%; 314—3%; 270—9%.

Apothecia. *Parietin* (M 284), *fallacinol* (M 300), *fallacinal* (M 298), *parietinic acid* (M 314) and *emodin* (M 270).

Acknowledgements—The author is greatly indebted to Professor Arne Fredga for the facilities put at her disposal, to Dr. Gerd Bendz and Dr. Johan Santesson for their helpful interest in this work, to Dr. Rolf Santesson for the gift and the classification of the lichen material and to Dr. Mario Piattelli for a gift of reference compounds.