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5α,8α-EPIDIOXY-5α-ERGOSTA-6,22-DIENE-3β-OL FROM *USNEA ANNULATA* AND *DACTYLINA ARCTICA*

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Key Word Index—*Usnea annulata*; *Dactylina arctica*; Usneaceae; lichens; sterol; 5α,8α-epidioxy-5α-ergosta-6, 22-diene-3β-ol.

INTRODUCTION

Previous work has described the presence of (+)-usnic acid in *Usnea annulata* [1] and usnic and gyrophoric acids in *Dactylina arctica* [1, 2].

RESULTS

Usnea annulata (Mull. Arg.) Tomin. (Voucher specimen in the herbarium of the Institute of Biology and Pedology, Far East Science Centre, USSR Academy of Sciences, Vladivostock, USSR) was collected from the Kamenushka River valley near Ussuriisk, Primorye Territory, USSR. The residue obtained after separation of (+)-usnic acid [1] and saponification with 5% NaOH was chromatographed on a Si gel (150–175 mesh) column. Elution with pentane–$CHCl_3$ (2:1) yielded a crystalline compound (0.026%), which after additional chromatography on a Si gel (175–200 mesh) column and recrystallisation had mp 178.5–180° (hexane), $C_{28}H_{44}O_3$ M^+ at *m/e* 428), $[\alpha]_D^{22}$ −22.5° ($CHCl_3$), IR (KBr) cm^{-1}: 3540, 3420, 1380, 1050, 975, PMR ($CDCl_3$): δ 0.81–1.04 (18H), 3.96 (1H, *m*), 5.15–5.22 (2H, *m*), 6.35 (2H, AB-*q*, δ_{AB} 25 Hz, J_{AB} = 8.4 Hz) and was identical (TLC, mp, IR, PMR, MS, mmp) with the authentic sample of 5α,8α-epidioxy-5α-ergosta-6,22-diene-3β-ol [3].

Dactylina arctica (Hook) Nyl. was obtained from the upper reaches of Kolyma River near Kulu, Magadan Region, USSR. The residue obtained after separation of (+)-usnic acid [1] and evaporation of the solvent was chromatographed on Si gel (65–80 mesh). Elution with petrol (bp 70–100°)–$CHCl_3$ (1:1) yielded a crystalline product (0.027%) which, after additional purification (as described above), proved to be identical with 5α,8α-epidioxy-5α-ergosta-6,22-diene-3β-ol.

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1H-INDENE-2,3-DIHYDRO-4-CARBOXALDEHYDE AND 1H-INDENE-2,3-DIHYDRO-5-CARBOXALDEHYDE FROM THE SEEDS OF *AMOMUM MEDIUM*

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Key Word Index—*Amomum medium*; Zingiberaceae; 1H-indene-2,3-dihydro-4-carboxaldehyde; 1H-indene-2,3-dihydro-5-carboxaldehyde; seeds.

In a previous paper [1], we described the pharmacognostic properties of the seeds of *Amomum medium* Loureiro (*A. tsao-ko* Crevostet et Lemair*, ovoid China Cardamon†, commercially available in Japan and Hong Kong), one of the plant drugs of Chinese medicine. This report deals with the isolation and structural elucidation of two simple aldehydes along with α-pinene, β-pinene, myrcene, α-phellandrene,

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