Isolation of a New Secalonic Acid

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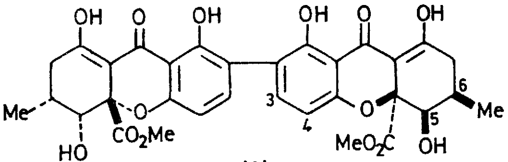
Summary A new secalonic acid (I) has been isolated from *Phoma terrestris*.

Secalonic acids A, B, C, D have been isolated from *Claviceps purpurea*[1] and *Penicillium oxalicum*[2] and well characterised.[3] These acids have provided and continue to provide speculation concerning their biosynthesis from anthraquinone precursors.[4] We report the isolation of two secalonic acids from a phytotoxic fungus, *Phoma terrestris* Hansen, as major metabolites. One of these secalonic acids is identical with the previously reported secalonic acid A whilst the other is apparently a new one which we have termed secalonic acid E (I). Secalonic acid A is enantiomeric with secalonic acid D and the new secalonic acid E appears to be enantiomeric with secalonic acid B, since structure (I) is the enantiomer of the structure reported for B.[1] From a biosynthetic point of view it is of interest that the two secalonic acids isolated from *Phoma terrestris* differ only in the orientation of the secondary hydroxy group at C-5 (5′) indicating possibly a non-selective reduction of a precursor ketone. Secalonic acid E (m.p. 206—208°, $[\alpha]^{22}_{D}$ $-212°$, pyridine, $c = 0{\cdot}41$) has a molecular formula $C_{32}H_{30}O_{14}$ and gave a reddish-brown colour with ferric chloride. On oxidation it gave $R(+)$-methylsuccinic acid which defined the centre at C-6 (6′). Further evidence for its structure was obtained from u.v. [λ_{max} 265 nm (log ϵ 4·37), 338 (4·64)], i.r. ν_{max} 3600, 3200, 1740, 1600 cm^{-1}) mass (M, 638·1620; $C_{32}H_{30}O_{14}$; $M - C_2H_3O_2$, 579·1509; $C_{30}H_{27}O_{12}$), and n.m.r. spectroscopy [δ 3·96, 5-H, $J_{5,6}$ 0–2 Hz; δ 6·56, 3-H, $J_{3,4}$ 8 Hz. This latter n.m.r. signal moves to δ 6·87 on acetylation of (I), characteristic of a proton *para* to a hydroxy group].



(I)

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[3] See refs. 1 and 2, and J. W. ApSimon, J. A. Corran, N. G. Creasy, W. Marlow, W. B. Whalley, and K. Y. Sim, *J. Chem. Soc.*, **1965**, 4144.

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