NEW ANTIBIOTICS FROM *CYLINDROCARPON* SP.

Sir:

In the course of screening antifungal metabolites, we found a species of *Cylindrocarpon* (strain PF-60) which produced seven compounds belonging to the roridin group.[1] Two of the seven were obtained in very poor yield and not investigated in detail. One compound was confirmed to be roridin H(I).[2] Characterization of the remaining four new compounds is described in this paper.

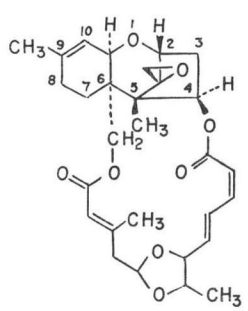
The fungus was fermented at 28°C for 91 hours under aeration at 15 liters/min and agitation at 300 r.p.m. in a 30-liter jar fermentor containing 20 liters of medium composed of 200 g/liter boiled potato extract and 2% sucrose. The fermentation broth was extracted with ethyl acetate giving an antifungal oily residue. The residue was separated into seven components by silica gel chromatography (benzene - ethyl acetate, 2 : 1) and preparative TLC on silica gel (benzene - acetone, 2 : 1).

Isororidin E (**II**) was crystallized from ethyl acetate as colorless prisms: $C_{29}H_{38}O_8$; m.p. 200~202°C; M^+ 514; $[\alpha]_D^{24}$ −65.1° ($CHCl_3$); $\nu_{max}^{CHCl_3}$ 3757 (OH), 1713 (C=O), 1644 (C=C), and 1598 cm^{-1} (C=C); λ_{max}^{EtOH} 223 nm (ε 24,000) and 262 (16,000). Although these data and the NMR data closely resemble those of roridin E (**II**),[3] the specific rotation did not correspond to that reported for roridine E, $[\alpha]_D$ −16°.[3] Hydrolysis of isororidin E gave the known verrucarol[4] and a dicarboxylic acid, which was a stereoisomer at C-6′ and/or C-13′ of the corresponding acid of roridin E (**II**).

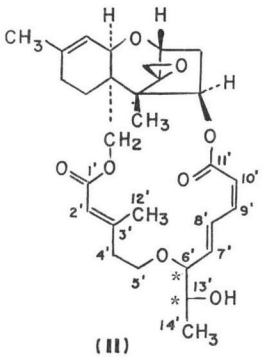
7β,8β-Epoxyisororidin E (**III**) was obtained as colorless prisms: $C_{29}H_{36}O_9$; m.p. 216~219°C (from acetone); M^+ 528 $[\alpha]_D^{24}$ −69.9° ($CHCl_3$); $\nu_{max}^{CHCl_3}$ 3567 (OH), 1712 (C=O), 1644 (C=C), and 1598 cm^{-1} (C=C); λ_{max}^{EtOH} 221 nm (ε 26,300) and 262 (16,700). NMR and hydrolytic studies clearly show that compound **III** has a β-epoxy function at C-7,8 in the verrucarol moiety and a side chain similar to that of isororidin E (**II**). Therefore, this compound is represented by formula **III**.

7β,8β-Epoxyroridin H (**IV**) was obtained as a colorless amorphous powder: $C_{29}H_{34}O_9$; M^+ 526; $\nu_{max}^{CHCl_3}$ 1717 (C=O), 1646 (C=C), and 1601 cm^{-1} (C=C). 7β,8β; 2′,3′-Diepoxyroridin

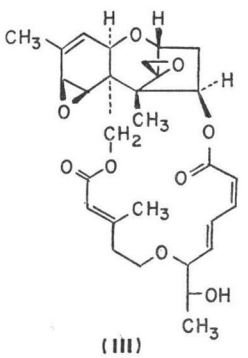
Chart 1.



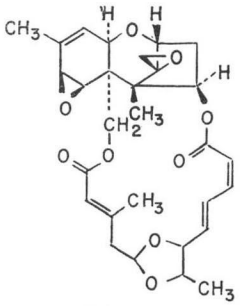
(I)



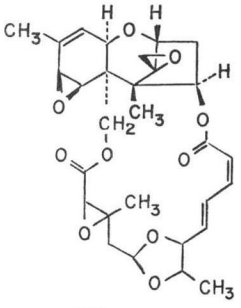
(II)



(III)



(IV)



(V)

H (**V**) was obtained as colorless prisms: $C_{29}H_{34}O_{10}$; m.p. 291~293°C (dec.) (sealed); M^+ 542; $\nu_{max}^{CHCl_3}$ 1755 (C=O), 1710 (C=O), 1645 (C=C), and 1601 cm^{-1} (C=C). The structures of **IV** and **V** were derived from ^1H NMR in conjuction with the ^{13}C FT NMR spectra.

During this work, we found that *cis*-relationship between 2'-H and 3'-CH_3 in roridin E[3] and H[2] should be revised to *trans*-configuration from NMR studies; no NOE was observed between 3'-CH_3 and 2'-H, although NOE's were observed between 9-CH_3 and 10-H (*ca.* 15%) in the compounds examined. Structural elucidation of the four new compounds (**II**~**V**) will be described in a forthcoming paper.

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