

## ISOLATION OF GLIOVICTIN FROM THE MARINE DEUTEROMYCETE *ASTEROMYCES CRUCIATUS*

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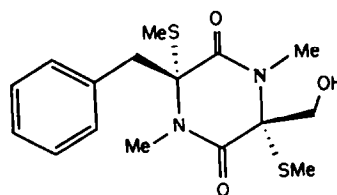
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**Key Word Index**—*Asteromyces cruciatus*; Deuteromycetes; Hypomycetales; marine fungus; gliovictin; diketopiperazines.

**Abstract**—(–)Gliovictin, a diketopiperazine isolated from terrestrial fungi of the genera *Helminthosporium* and *Penicillium*, has been isolated from culture broths of the marine deuteromycete *Asteromyces cruciatus*.

The paucity of chemical information defining the metabolic products of marine fungi [1] prompts us to report upon our investigation of the marine deuteromycete *Asteromyces cruciatus* F. et Moreau ex Hennebert. This obligate marine fungus is frequently isolated from drift wood and from both living and decaying marine algae [2]. An isolate of *A. cruciatus*, F156, was first subcultured on seawater agar plates and the mycelia were transferred to liquid media [3, 4] and further cultivated at 25° for 21 days. The mycelia and culture media were separated by filtration and extracted individually with ethyl acetate. Mycelia yielded only triglycerides and sterols, including 5,8-peroxyergosterol, while the media extract was observed to contain major quantities of a single metabolite, identified as the known fungal metabolite gliovictin (1).

The isolation of gliovictin was readily accomplished by combined Sephadex (n-hexane–CH<sub>2</sub>Cl<sub>2</sub>–MeOH: 1:4:1) and silica (30% EtOAc–isooctane) high performance liquid chromatography. Gliovictin composed 27% of the media extract, and was identified by comparison of its physical and spectral properties with those reported [5]. Carbon-13 NMR data, which do not appear in the original literature, have been obtained for gliovictin in (CDCl<sub>3</sub>) at 50 MHz: 165.2 s, 165.1 s, 133.9 s, 129.7 d (2C), 128.3 d (2C), 127.4 d, 73.2 s, 71.5 s, 64.1 t, 42.1 t, 30.6 q, 29.1 q, 14.0 q, 13.1 q. The gliovictin isolated was confirmed as the originally isolated (–) isomer by comparison of its rotation,  $[\alpha]_D -62^\circ$  (c1.88, CHCl<sub>3</sub>), with that reported (for the 3R, 6R isomer) [5]. In contrast, the recently reported enantiomer (3S, 6S), isolated from *Hyalodendron* sp. [6], shows  $[\alpha]_D +64^\circ$ . *Asteromyces*



1 Gliovictin

*cruciatus* (isolate F156) was originally obtained by Dr. Paul W. Kirk from samples obtained in the lower Chesapeake Bay. We thank Dr. M. Speedie, University of Maryland, for providing this sample.

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