

XANTHYLETIN AND XANTHOXYLETIN FROM A GORGONIAN, *ECHINOLOGORGIA* SP.

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ABSTRACT.—Two coumarins, xanthyletin and xanthoxyletin, were isolated from a gorgonian, *Echinogorgia* sp. This is the first report of the isolation of these two coumarins from a marine organism.

In our search for biologically active secondary metabolites from marine organisms, we have isolated the two coumarins, xanthyletin and xanthoxyletin, from a Sri Lankan gorgonian, *Echinogorgia* sp. Although these two coumarins have been previously isolated from terrestrial plants (1–6), this is the first report of their isolation from a marine organism.

Fresh specimens of *Echinogorgia* sp. were extracted with CH_2Cl_2 -MeOH (1:1) at room temperature. On evaporation of the solvent, the residue was partitioned between CH_2Cl_2 and aqueous MeOH. Repeated cc gave a light brown solid that contained two uv-active components. Reversed-phase hplc separation of this mixture gave the two coumarins xanthyletin, mp 130–131°, and xanthoxyletin, mp 132–133°, which were identified by their spectral data (3–7).

EXPERIMENTAL

GENERAL EXPERIMENTAL PROCEDURES.—Mp's were determined on a Kofler hot stage apparatus and are uncorrected. Hplc separations were carried out using an Applied Science 5 μ C_{18} column with a Waters Associates Model R401 differential refractometer.

MARINE ORGANISM.—The gorgonian, *Echinogorgia* sp., was collected at Mount Lavinia on the west coast of Sri Lanka in January 1984. A voucher specimen is on deposit at the Northern Territory Museum of Arts and Sciences, Darwin, Australia (Registration No. N.T.M. C5890).

The organism is a fan-like colony with short branches, about 1 mm in diameter, frequently anastomosing to form a close network. The branches are closely covered with dome-shaped calyces of approximately 0.5 mm height. The sclerites of the calyces and the upper layer of the coenenchyme are thorn clubs up to 0.23 mm in length, the terminal processes of thick leaves and thorns projecting from branching bases. The axial sheath contains capstans. The polyps are armed with large bent spindles. The collaret is 1 to 2 rows deep, and each point consists of 1 to 2 spindles. The color of the colony is gray-brown.

The specimen has similarities to *Echinogorgia reticulata* (Esper) but differs from it in having a different polyp armature, much smaller sclerites, and a different color (*E. reticulata* is red).

ISOLATION OF XANTHYLETIN AND XANTHOXYLETIN.—Fresh specimens of the gorgonian, *Echinogorgia* sp. (500 g), were stored in MeOH, ground to a coarse powder, and extracted with CH_2Cl_2 -MeOH (1:1) at room temperature. The extract was concentrated in vacuo, and the residue (750 mg) was partitioned between CH_2Cl_2 and aqueous MeOH. Evaporation of solvent from the organic extract under reduced pressure gave a dark brown residue that, after repeated cc on SiO_2 using CH_2Cl_2 -petroleum ether (1:1), gave a light brown solid (43 mg). This was found to contain two uv-active compounds by tlc analysis. Separation of these by hplc, using a reversed-phase C_{18} column and H_2O -MeOH (35:65) as eluent, afforded xanthyletin (16 mg), mp 130–131° [lit. (6) 130–131°], and xanthoxyletin (9.4 mg), mp 132–133° [lit. (4) 132–133°], which were identified by comparison of their spectral data with those previously reported (3–7).

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