Tryptophol, a plant auxin isolated from the marine sponge *Ircinia spinulosa*

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1. Subject and source

A sample of the marine sponge, *Ircinia spinulosa*, light brown in color, was collected from the Aegean Sea in Bodrum, Turkey, at a depth of 3 m, in August 1996. A voucher specimen is deposited in the Department of Biology, Faculty of Education, Gazi University.

2. Previous work

Tryptophol [2-(3-indolyl)-ethanol], a well-known constituent of terrestrial plants and microorganisms, has so far been isolated from tryptophan fermentations, plant seedlings, *Aspergillus niger*, *Agrobacterium tumefaciens*, *Ceratocystis* spp., and *Rhizobium* spp. (Buckingham, 1994). We have now isolated tryptophol from the marine sponge *Ircinia spinulosa* collected from the Aegean Sea. In addition to terrestrial sources, tryptophol has been isolated as a plant auxin from the culture media of the fungi *Balansia epichloe* (Clavicipitae) (Porter et al., 1985) and *Dreschslera nodulosum* (Sugawara and Strobel, 1987).
3. Present study

A fresh sample of *Ircinia spinulosa* (300 g) was cut into small pieces and extracted with ethanol at room temperature. The ethanolic extract was concentrated under vacuum and partitioned between ethyl acetate and water. The ethylacetate extract was concentrated to dryness and fractionated by vacuum flash chromatography (VFC) over silica gel. One of the VFC fractions was subjected to centrifugal countercurrent chromatography (CCC). The first CCC fraction gave three subfractions, the second of which yielded pure tryptophol (6.5 mg) by normal phase HPLC (EtOAc : Hextane/5 : 3). It was identified as tryptophol by comparison with the published spectroscopic data given in our previous work (Erdogan, 1998).

4. Chemotaxonomic significance

Biosynthesis of tryptophol may be either through tryptophan or through decarboxylation and deamination reactions (Fenn et al., 1977). For *Balancia epichloe*, it was suggested that this fungus may catabolize endogenous tryptophan to regulate plant growth and 3-substituted indoles like tryptophol may be involved in the regulation of plant growth by this fungus. Tryptophol was also reported to have antibacterial activity against gram-positive bacteria and *Candida albicans* (Buckingham, 1994). Although it is a well-known compound in terrestrial plants and often reported as a by-product of indoleacetic acid metabolism in plants and microorganisms, tryptophol has never been reported from a marine organism before. It may be considered to be playing a similar role in regulating growth of marine organisms as in plants.

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References