Constituents of the sponge *Thorecta reticulata*†

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1. Subject and source

*Thorecta reticulata* Bergquist is a sponge of the family Thorectidae (order Dicytoceratida) collected from the Kaikoura Peninsula, New Zealand, by SCUBA at a depth of 20 m. Taxonomic identification was provided by Professor Dame Patricia Bergquist, School of Biological Sciences, University of Auckland, and a voucher specimen (P.O.R. 436) has been deposited in the Museum of New Zealand, Wellington.

2. Previous work

Previously, only seven compounds have been isolated from *Thorecta* sponges, viz., two linear sesterterpenes and the carotenoid thorexanthin from *T. horridus*, collected from the Bahamas (Fattorusso et al., 1991, 1992), two linear sesterterpenes from a *Thorecta* species collected from the Bay of Islands, New Zealand (Kernan et al., 1991), and a linear sesterterpene and a sesquiterpene quinone plus its hydroquinone from *T. choanoides* collected from southern Australia (Bonny and Capon, 1994).
3. Present study

The freeze-dried sponge was extracted with CH₂Cl₂ and with MeOH. The CH₂Cl₂ extract was separated by flash column chromatography on silica gel to yield furospinosulin 1 (0.07%) (Cimino et al., 1972), comentin C (0.004%) (Urban and Capon, 1992), luflarin X (0.003%) (Butler and Capon, 1992), pentaprenylhydroquinone (0.01%) (Lumsdon et al., 1992), and pentaprenylquinone (0.005%) (Cimino et al., 1975). While the ¹³C NMR spectrum of pentaprenylhydroquinone was identical with that published (Lumsdon et al., 1992), a COSY spectrum showed that the signals of a terminal methyl group and the terminal olefinic proton in the ¹H NMR spectrum were incorrectly assigned and are correctly represented as in Fig. 1.

Flash-column chromatography of the MeOH extract on silica gel followed by particle size exclusion filtration through Sephadex LH-20 gave the sesterterpene lactone petrosaspongiolide B (0.09%) (Lal et al., 1994).

4. Chemotaxonomic significance

The isolation of furospinosulin 1, comentin C, luflarin X, pentaprenylhydroquinone, and pentaprenylquinone is unexceptional and is in accordance with other compounds isolated from Thorecta species. The isolation of the hexacyclic sesterterpene petrosaspongiolide B was unexpected from a Thorecta species. As such, the sponge was re-examined morphologically and the taxonomy was re-confirmed as T. reticulata. To date petrosaspongiolides have only been isolated from the sponge Petrosaspongia nigra collected from New Caledonia (Lal et al., 1994; Paloma et al., 1997; Randazzo et al., 1998) which was introduced into the family Thorectidae by Bergquist in 1995.

References