

ISOLATION OF A POTENT SPERM ANT-MOTILITY
COMPOUND FROM SOFT CORAL *SINULARIA ABRUPTA*

G.K. Liyanage*, L.M.V. Tillekertne*,
E.D. de Silva*, W.D. Ratnasooriya**,
Alfred Hassner*** and Ananda Amarasekera***

*Dept. of Chemistry, University of Colombo.

**Dept. of Zoology, University of Colombo.

***Dept. of Chemistry, Bar-Ilan University, Israel.

The crude extracts of two species of alcyonacean soft corals of the genus *Sinularia* had shown potent sperm anti-motility activity at 1.0 - 0.05 mg/ml concentrations on rat and human sperms.^{1,2} Fractionation of the crude extract of *Sinularia abrupta* yielded two compounds possessing strong sperm anti-motility effect¹.

The two compounds were isolated as described previously. One of them had a molecular formula of C₁₅H₂₈ according to high resolution mass spectrometry. The proton NMR signals at δ 0.189 (dd, 1H), 0.508 (m, 1H), 0.52 (d, 1H) together with ¹³C NMR signals at δ 19.0 (s), 20.5 (q) and 22.0 (d) are indicative of the presence of a trisubstituted cyclopropane system. An exocyclic methylene group was indicated by proton NMR signals at δ 4.75 (brm, 1H) and 4.86 (brm, 1H) and two ¹³C carbons resonating at δ 104.3 (t) and 158.4 (s). The presence of three tertiary methyl groups was shown by three singlets at δ 0.88 (3H), 0.95 (3H) and 1.01 (3H). The partial proton decoupling of ¹³C nuclei by irradiating at δ 2.5 and 0.5 together with ¹³C correlation experiments and biogenetic considerations revealed the structure to be 2,6,6-trimethyl 9-methylene bicyclo (6.3.0.0²⁽⁴⁾) undecane (1). This was further confirmed and the stereochemistry was established by two-dimensional NMR experiments.

Although this structure has been previously reported by x-ray and chemical studies,³ this is the first report of use of extensive spectroscopic studies to determine its structure. The presence of sperm anti-motility effect at low concentrations might be exploited for the development of efficient vaginal contraceptive drugs.

References

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- Liyanage G.K., Ratnasooriya, W.D., Tillekeratne, L.M.V., Mahendran, M. and de Silva E.D., (1986) *IRCS Med. Sci.* 14, 721-722

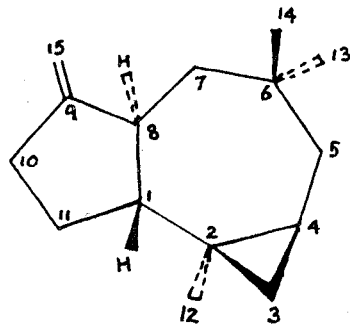


Fig-1

09th Dec. 1987 (Wednesday) 02.30 p.m. - 02.45 p.m.