A Hypnotic Barbitone from *Sphaeroides oblongus*

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The common hypnotic 5,5-diethylbarbituric acid has been isolated for the first time from a natural source, *Sphaeroides oblongus*.

The puffer fish *Sphaeroides oblongus* is responsible for occasional damage[1] to health and lives in the coastal region of India. A chemical investigation of the major source of poison (the liver[2]) of *S. oblongus*, collected from the coast of the Bay of Bengal, afforded shining white needles, m.p. 195—196 °C. Spectroscopic data [λ_{max} 224(EtOH); 224 and 240(EtOH–NaOH); and 243 nm (0.1 N-NaOH); ν_{max} (KBr) 1682s, 1721s, and 1769s (3 × C=O), 3430(br, 3210m, 3170m, and 3080s cm^{-1} (highly associated NH); δ_H 0.7 (3H, t, CH_2CH_3) and 1.8 (2H, q, CH_2CH_3); *m/z* 156 (M^+, $C_6H_8N_2O_3$), 155, 141, 112, and 98] indicated a structure similar to 5-ethylbarbituric acid (**1**), but comparison (mixed m.p., t.l.c., i.r.) with the synthetic product[3] showed them to be different. ^{13}C N.m.r. signals of the isolated compound [δ 9.08 (q, CH_3), 31.11 (t, CH_2), 56.44 (s, quat. C), 149.91 (s, C=O), and 173.04 (s, 2 × C=O)] were similar to those of structure (**1**) excepting for the peak at δ 56.44. The molecular weight (M^+ 184) and composition ($C_8H_{12}N_2O_3$) of the compound were determined by fast atomic bombardment mass spectrometry leading to its identification as 5,5-diethylbarbituric acid (barbitone) (**2**); this was confirmed by spectroscopic comparison with authentic material.

The occurrence of barbitone in *S. oblongus* was monitored for two years; its appearance was found to be seasonal, probably related to the breeding term.

Tetrodotoxin (**3**) is the major constituent of the puffer fish elsewhere.[4] The structural patterns of tetrodotoxin (**3**) and barbitone (**2**) show some similarity.

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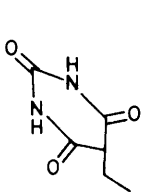
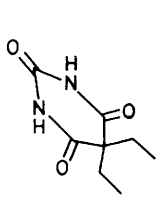


(1)



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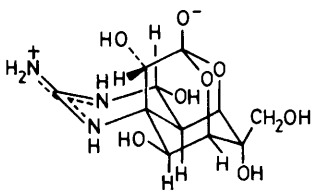

(3)

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