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## Comparison of Adipedatol with Hydroxyhopane and Hydroxyisohopane

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ADIPEDATOL (I) is a fern triterpenoid of the 30norhopane group having a hemiacetal linkage between C-22 and C-28.1 We report a comparison of compound (I) with hydroxyhopane<sup>2</sup> (diplopterol)<sup>3</sup> (II) with regard to the configuration at C-21 in hopane, which has recently been reported somewhat ambiguously.4

formation of its C-21-isomer, 22-hydroxyisohopane (VI) was not observed by t.l.c., i.r., and g.l.c.

The isomer of (III) at C-21 was also prepared by Grignard reaction of the compound (VII),<sup>1</sup> which was obtained, by treatment of (I) with HCl-dioxan, in high yield. The diol (VIII), {m.p. 269-273°,  $[\alpha]_D + 30^\circ$  (c 0.5 in pyridine),  $v_{max}$  (KBr) 3300,



Treatment of adipedatol (I) with methylmagnesium iodide gave a diol (III), {m.p. 294-298°,  $[\alpha]_{\rm p}$  + 60° (c 0.25 in pyridine),  $\nu_{\rm max}$  (KBr) 3210, 1145, and  $1032 \text{ cm}^{-1}$ }, in good yield. The diol (III) was then oxidised with  $CrO_3$ -pyridine at  $0^{\circ}$ to afford a hemiacetal (IV), [m.p. ca. 220°, vmax (KBr) 3470 and 1119 cm.<sup>-1</sup>:  $\tau$  4.54s (1H at C-28), 8.68, 8.83, 8.95, 9.01, 9.14, 9.17, and 9.20 (3H each at C-29, C-30, C-27, C-26, C-23, C-25, and C-24, respectively)] with a small amount of a lactone (V), [m.p. 263–267°, v<sub>max</sub> (KBr) 1727 and 1100 cm.-1]. Wolff-Kishner reduction of (IV) according to Barton's procedure gave an alcohol, m.p. 253-255°, which was proved to be 22-hydroxyhopane (II) by comparison of m.p., i.r. spectra, and t.l.c. with those of an authentic sample. The only product of this reaction was the alcohol (II), and

(VI)=Hydroxyisohopane

1150, and 1037 cm.<sup>-1</sup>} was oxidised with  $CrO_3$ pyridine to give an aldehyde alcohol (IX), [m.p. 202-205°, vmax (KBr) 3470, 1121 (OH), 2720, and 1712 (CHO) cm.<sup>-1</sup>]. Wolff-Kishner reduction of (IX) afforded an alcohol (VI), m.p. 225-227°, which was identified as 22-hydroxyisohopane<sup>2,5</sup> by direct comparison with an authentic sample.

These results suggest that 22-hydroxyhopane (II) should have  $21\beta$ H-configuration, and 22hydroxyisohopane (VI) the 21aH-configuration, respectively. We conclude that all compounds of the hopane group which can be compared with hydroxyhopane, such as hydroxyhopanone,<sup>2</sup> diploptene,<sup>6</sup> adiantone,<sup>7</sup> neriifoliol,<sup>8</sup> have the  $21\beta$ Hconfiguration.

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