SYNTHESIS OF 7-METHOXYOCIDOL
[2-(2'-HYDROXYISOPROPYL)-7-METHOXY-
5,8-DIMETHYL-1,2,3,4-TETRAHYDRONAPHTHALEN]. A BIO-CONGENER OF OCIDOL

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The recent isolation\(^1\) of the moderately antieleukaemic
sesquiterpene aromatic hydroxy acid, manicol(I) from
*Duclia guinensis* and its structure elucidation by
correlation with 2-isopropyl-7-methoxy-5,8-dimethyl-
1,2,3,4-tetrahydronaphthalene (II) prompted us to
report our work\(^8\) on the closely related title compound
(II\(\beta\)), the synthesis of which was primarily undertaken
to obtain the 7-methoxy congener of the naturally
occurring ocidol\(^5\)\(^4\) (IV) on the assumption that in
some plant source in nature dienones structurally
related to santonin (V) could give rise to the 7-hydroxy
anologue (III\(\alpha\)) of ocidol by the well-known dienone-
phenol rearrangement, followed by other biogeneti-
cally plausible steps.

7-Methoxy-5,8-dimethyl-3,4-dihydro-2-naphthaldehyde\(^6\)
(VII), obtained from 7-methoxy-5,8-dimethyl-1-
tetralol (VI) by Wilsmeier reaction, was oxidized to
the corresponding acid (VIII) by Jones reagent\(^8\) and
hydrogenated (Pd/C, 10%) to afford the tetralin carbo-
xylic acid (IX\(\alpha\)). Its methyl ester (IX\(\beta\)) gave on
Grignard reaction with methylmagnesium iodide
7-methoxyocidol (II\(\beta\)), the title compound. The
PMR characteristics of the new compounds described
are summarized in Table I.

Details of the work, including the transformation of
2-(2'-hydroxyisopropyl)-7-methoxy-5,8-dimethyl-
1,2,3,4-tetrahydronaphthalene (7-methoxyocidol),
(II\(\beta\)) to 2-isopropyl-7-methoxy-5,8-dimethyl-1,2,3,

<table>
<thead>
<tr>
<th>Compound</th>
<th>m.p.</th>
<th>Solvent</th>
<th>PMR data</th>
</tr>
</thead>
<tbody>
<tr>
<td>7-Methoxy-5,8-dimethyl-3,4-dihydro-2-naphthaic acid VIII</td>
<td>225°</td>
<td>(ethanol)</td>
<td>(CDCl(_3), 60 MHz) : 2·34 (6H, s, 2xAr-CH(_3)), 2·66 (4H, m, 2xCH(_2)), 3·87 (3H, s, OCH(_3)), 6·73 (1H, s, H(_9)), and 8·0 (1H, s, H(_9)).</td>
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<tr>
<td>7-Methoxy-5,8-dimethyl-1,2,3,4-tetrahydro-2-naphthaic acid IX(\alpha)</td>
<td>180°</td>
<td>(ethanol)</td>
<td>(CDCl(_3), 60 MHz) : 2·13 (3H, s, Ar-CH(_3)), 2·23 (3H, s, Ar-CH(_3)), 2·4–3·0 (7H, m, aliphatic-H), 3·83 (3H, s, OCH(_3)) and 6·3 (1H, s, H(_8)).</td>
</tr>
<tr>
<td>Methyl 7-methoxy-5,8-dimethyl-1,2,3,4-tetrahydro-2-naphthaic acid IX(\beta)</td>
<td>63°</td>
<td>(hexane)</td>
<td>(CCl(_4), 60 MHz) : 2·05 (2H, s, Ar-CH(_2)), 2·15 (3H, s, Ar-CH(_3)), 2·2–2·8 (7H, m, aliphatic-H), 3·67 (3H, s, OCH(_3)) or CO(_2)CH(_3)), 3·75 (3H, s, CO(_2)CH(_3)) or OCH(_3)), and 6·77 (1H, s, H(_8)).</td>
</tr>
<tr>
<td>2-(2'-Hydroxyisopropyl)-7-methoxy-5,8-dimethyl-1,2,3,4-tetrahydronaphthalene II(\beta)</td>
<td>84–85°</td>
<td>(hexane)</td>
<td>(CCl(_4), 60 MHz) : 1·26 [6H, s, CO(_2) (CH(_3))], 2·1 (2H, m, non-benzylic CH(_2)), 2·8 (5H, m, 2xbenzylic CH(_2) and CH(_3)), 3·75 (3H, s, OCH(_3)) and 6·72 (1H, s, H(_8)).</td>
</tr>
</tbody>
</table>
4-tetrahydro-naphthalene (II) which played a key role in the structure elucidation of manicol (I) will be published elsewhere.

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**STUDIES OF SOME NAPHTHO-THIA- AZA COMPOUNDS AS PLANT GROWTH PROMOTERS**

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It has been already reported that some benzothiazolyl hydrazones are growth promoters in some leguminous plants. Studies are made of some condensed thiazole systems on nodulation by Kulkarni et al. and the results were statistically significant. Hence naphthalene system was selected in place of simple benzo-compounds. Hydrazino naphthothiazole was condensed with aldehydes using ethanol as a solvent. The hydrazone was filtered off and recrystallized by DMF. N-triazolo (5, 4-b) naphtho (2, 1-d) thiazole (I), 3-mercapto-s-triazolo (5,4-b) naphtho (2, 1-d) thiazole (II), 3-hydroxy-s-triazolo (5, 4-b) naphtho (2, 1-d) thiazole (III) and 3-methyl-s-triazolo (5,4-b) naphtho (2, 1-d) thiazole (IV) and the hydrazones selected 5-chloro salicyl (V), p-hydroxy phenyl (VI) and phenyl naphthothiazoyl (VII) hydrazones were prepared in this laboratory.

Solution of each compound had a concentration of (5 ppm). Gibberellic acid (GA₃) was used as standard and sterile water was kept as control. Cicer arietinum was selected as the leguminous plant. Blotters were sterilized at 15 psi for 20 min before use. The experiment was set up in duplicate, 10 seeds in every petridish. Root and shoot lengths were determined. On third day 5 seeds along with root and shoot were dried at 60 ± 2°C (Table I). Root and shoot parts were separated, crushed in water and the extract was filtered (15 ml). From this solution amino acids were identified using butanol: acetic acid: water (4:1:5). The amount of nitrogen was estimated by Kjeldahl's method. Trichloroacetic acid was used for the separation of protein part from non-protein part.

Table I includes the root and shoot length, the percentage difference, amount of nitrogen before and after trichloroacetic acid treatment, the weight of residue from trichloroacetic acid treatment respectively.

Present investigation strengthens our view that the B₄ nucleus, when replaced by polynuclear hydrocarbon, helps in the plant growth activity. It is not only the methyl electron donating group at B₄ that increases the length and dry matter but also the naphthalene ring attached to thiazole system.