Constituents of the Leaf Oil of Curcuma longa L. from Uttarakhand

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Constituents of the Leaf Oil of *Curcuma longa* L. from Uttaranchal

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Abstract
The volatile oil from the leaves of *Curcuma longa* L. has been investigated by GC and GC/MS. Twenty-eight constituents have been identified, with terpinolene (71.2%) as the major constituent.

Key Word Index
*Curcuma longa*, Zingiberaceae, essential oil composition, terpinolene.

<table>
<thead>
<tr>
<th>Plant Name</th>
<th><em>Curcuma longa</em> L.</th>
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</thead>
<tbody>
<tr>
<td>Source</td>
<td>Cultivated plants collected from Nainital district.</td>
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<tr>
<td>Plant Part</td>
<td>Fresh leaves on steam distillation produced an oil in 0.15% yield.</td>
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<tr>
<td>Previous Work</td>
<td>The leaf oil of <em>C. longa</em> from Vietnam has been reported to contain α-phellandrene (24.5%), 1,8-cineole (15.9%), p-cymene (13.2%) and β-pinene (8.9%) as the major components, while the oil from Bhutan had a similar chemical composition except that terpinolene (11.6%) was one of the major constituents (1,2). Another report on the oil from the plains of northern India showed the presence of terpinolene (26.4%), 1,8-cineole (9.5%), α-phellandrene (8.0%) and terpinen-4-ol (7.4%) as the major constituents (3).</td>
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<tr>
<td>Present Work</td>
<td>The oil was analyzed using a combination of capillary GC and GC/MS. GC analysis was performed on Varian Vista 6000 and Varian 3700 using N2/He carrier gas, DB-5 fused silica capillary columns (30 m x 0.25 mm and 60 m x 0.25 mm; film thickness 0.25 μm, respectively). The injector and detector</td>
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temperatures were 240°C and 280°C, respectively. The initial temperature was 60°C and programming rate was 3°C/min, the final temperature being 240°C, while the total run time was 70 min.

The GC/MS was done using fused silica capillary column (30 m x 0.25 mm, film thickness 0.25 μm), liquid phase DB-5 with He as carrier gas in a Hewlett Packard 5840 A GC interphased with a Hewlet Packard 5985 mass spectrometer. The column temperature was programmed at 3°C/min from 60°-240°C. The mass spectra corresponding to GC peaks were scanned at 70 eV under EI conditions. The compounds were identified by their retention indices and by comparing their mass spectra with published data (4). The oil was characterized by a high percentage of terpinolene. To our knowledge this is the first time that p-cymen-9-ol is being reported in significant amount. Compounds identified in the oil, in order of elution from a DB-5 column, are listed in Table I.

Acknowledgements

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References