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**RESEARCH NOTE**

# Essential Oils from Leaves and Inflorescence of *Ocimum basilicum* var. *purpurascens* Benth. from Northeastern Brazil

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## Abstract

Essential oils from the leaves and inflorescences of *Ocimum basilicum* L. var *purpurascens* Benth. were obtained by steam distillation and using microwave distillation. Oils were investigated by GC and GC/MS. The main constituent in the leaf oils and inflorescence oil was linalool (39.3-79.6% and 81.5%).

## Key Word Index

*Ocimum basilicum* var *purpurascens*, Labiateae, essential oil composition, linalool.

## Plant Name

*Ocimum basilicum* var *purpurascens* Benth., local name : mangericão roxo.

## Source

The plant material was collected in the Medicinal Plant Garden of the Universidade Federal do Ceará, Brazil. The botanical material was identified in the Kew Royal Garden, London, England and voucher specimens have been deposited in the Prisco Bezerra Herbarium (Ceará-Brazil) under number 18777.

## Plant Part

Fresh leaves were collected in October 1996. Steam distillation produced an oil (UFC code- F2546) in 0.5% yield, and distillation using microwave oven (1) produced 0.1% yield (leaves) and only traces with inflorescences.

## Previous Work

Chemical composition of the leaf oil of *O. basilicum* var *purpurascens* collected in Jammu-Tawi from tissue culture techniques (2) and in India (3) was reported in the literature. Methyl cinnamate was the

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**Table I. Percentage composition of the leaf and inflorescence oils of the *Ocimum basilicum* var. *purpuracens***

| Compounds | Retention index | Leaf [a] | Leaf [b] | Inflorescence [b] | Method of identification |
|---|---|---|---|---|---|
| α-pinene | 927 | 0.6 | | | RRT, MS |
| camphene | 935 | 0.4 | | | RRT, MS |
| β-pinene | 958 | 1.3 | | | RRT, MS |
| p-cymene | 1001 | 0.5 | | | RRT, MS |
| 1,8-cineole | 1004 | 5.0 | 2.4 | | RRT, MS |
| limonene | 1008 | 1.0 | | | RRT, MS |
| γ-terpinene | 1038 | 0.3 | | | RRT, MS |
| cis-linalool oxide*† | 1044 | | 2.3 | | RRT, MS |
| trans-linalool oxide*† | 1060 | | 3.2 | | RRT, MS |
| linalool | 1091 | 39.3 | 79.6 | 81.5 | RRT, MS |
| camphor | 1107 | 0.9 | 2.0 | | RRT, MS |
| borneol | 1139 | 0.6 | | | RRT, MS |
| terpinen-4-ol | 1155 | 1.8 | 4.3 | | RRT, MS |
| α-terpineol | 1167 | | 2.6 | | RRT, MS |
| methyl chavicol | 1187 | 1.9 | | | RRT, MS |
| octyl acetate | 1204 | 2.3 | | | RRT, MS |
| bornyl acetate | 1271 | 0.9 | | | RRT, MS |
| δ-elemene | 1343 | 3.4 | | | RRT, MS |
| α-copaene | 1377 | 0.6 | | | RRT, MS |
| β-bourbonene | 1383 | 0.5 | | | RRT, MS |
| β-cubebene | 1384 | 2.0 | | | RRT, MS |
| β-elemene | 1393 | 0.8 | | 1.9 | RRT, MS |
| β-caryophyllene | 1416 | 0.8 | | | RRT, MS |
| trans-α-bergamotene | 1442 | 4.0 | | 2.5 | RRT, MS |
| α-humulene | 1449 | 1.6 | | | RRT, MS |
| bicyclogermacrene | 1491 | 0.7 | | | RRT, MS |
| germacrene A | 1499 | 1.0 | | | RRT, MS |
| δ-guaiene | 1503 | 0.4 | | | RRT, MS |
| γ-cadinene | 1512 | 7.7 | | | RRT, MS |
| humulene epoxide II | 1586 | 1.5 | | | RRT, MS |
| 1-epi-cubenol | 1600 | 2.3 | | | RRT, MS |
| T-cadinol | 1612 | | | 7.0 | RRT, MS |
| α-muurolol | 1627 | 11.0 | | | RRT, MS |
| β-eudesmol | 1630 | 0.5 | | | RRT, MS |
| Total | | 95.6 | 96.4 | 92.9 | |

[a] = steam distillation; [b] = microwave distillation; † = furanoid form

major component identified. A recent review of basil oil from different origins was also published (4).

## Present Work

Oil analysis were performed on a Hewlett-Packard 5971 GC/MS instrument employing the following conditions: Column: Dimethylpolysiloxane DB-1 fused silica capillary column (30 m x 0.25 mm, film thickness 0.1 μm); carrier gas: Helium (1 mL/min); injector temperature: 250°C; detector temperature: 200°C; column temperature: 35°-180°C at 4°C/min then 180°-250°C at 10°C/min; mass spectra: electronic impact 70 eV. Compounds were identified by mass spectral library search (5-7) and retention indices (8). The oil constituents are presented in Table I. The extraction using microwave oven produced linalool

in highest yield. The chemotype growing in Northeastern Brazil is very different to the chemotype growing in India, and is very similar to the *O. basilicum* of Taiwanese origin (9).

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