

## SHORT COMMUNICATIONS

### Essential Oil Composition of *Trachyspermum ammi* (L.) Sprague from South India

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**Fruit and herb oils of *Trachyspermum ammi* (L.) Sprague (Apiaceae) were analysed by GLC. Herb oil was found to contain cadinene (42.58%), longifolene (11.16%), thymol (5.4%), camphor (2.94%), carvone (2.31%), p-cymene (1.78%),  $\beta$ -pinene (1.29%), D-limonene (1.26%) and the fruit- thymol (97.97%).**

*Trachyspermum ammi* (L.) Sprague is a widely used medicinal herb of Apiaceae. Whole plant is used in the treatment of cholera, prolonged fever<sup>1</sup>, dyspepsia, indigestion rheumatic and neuralgic pains<sup>2</sup>. Seeds are good remedy for diarrhoea, dyspepsia<sup>3</sup>, abdominal tumours, tooth ache paralysis, kidney troubles<sup>4</sup>, infections in ovary<sup>5</sup>, abortion<sup>5,6</sup>, bronchitis, pneumonia, asthma and epilepsy<sup>7</sup>. This herb is collected from Kottakkal, Malappuram district, Kerala. It is herbarised at Botany Department of Calicut University (C. U. No. 51311). GLC analysis of essential oils from herb and fruits of South Indian *T. ammi* have not been attempted earlier.

The aromatic fresh herb and fruits were hydrodistilled separately on a Clevenger apparatus for 4h. Essential oils (Herb-0.29%, light yellow; seed-1%, yellow) were collected in small amber coloured bottles and refrigerated.

The essential oils were analysed on a Nucon 5765 instrument equipped with FID and connected with a chromatograph data processor. GLC conditions used were, column character: The liquid phase is 10%, silicon E-30 and solid phase is chromosorb W, high performance. The mesh size is 80/100. Column measurements: length of the column is 2 m and internal diameter is 2 mm. The carrier gas used is N<sub>2</sub> and the inlet pressure is 10 psi. The flow rate is 40 ml/min. Oven programme: 80-150° (8°/min), 150-290° (6°/min), 290°

(10 min). The injector temperature is 220° and the detector temperature is 240°.

The aromatic components detected from the herb oil are cadinene (42.58%), longifolene (11.16%), thymol (5.4%), camphor (2.94%), carvone (2.31%), p-cymene (1.78%),  $\beta$ -pinene (1.29%) and D-limonene (1.26%). The fruit oil consists of thymol (97.97%). The presence of thymol in fruit oil has been reported previously from different parts of the World<sup>8-11</sup>.

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## Determination of Milligram Amounts of Embramine and Hydroxyzine Hydrochlorides with Silver Nitrate

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**Three simple, accurate and rapid methods have been developed for the assay of two antihistamines, embramine and hydroxyzine hydrochlorides in pure sample and in pharmaceutical preparations. The methods depend on the titration of the chloride content of the drugs with silver nitrate, with visual, potentiometric and conductometric end-point detection.**

Mebrophenhydramine hydrochloride (MPH) (embramine) and hydroxyzine hydrochloride (HDH) are antihistaminic drugs that belong to diphenylmethane ether and diphenylmethane amino groups, respectively. MPH is used in all allergies, and HDH, in addition to having anxiolytic, sedative and antihistaminic properties, also has muscle relaxation and analgesic effects<sup>1</sup>. Not many methods are available for the determination of MPH. Visible spectrophotometry<sup>2</sup>, uv-spectrophotometry<sup>3,4</sup>, potentiometry<sup>5</sup> and capillary isotachopheresis<sup>6</sup> are some of the methods reported for the determination of MPH. HDH has been assayed by conductometry<sup>7</sup>, coulometry<sup>8</sup>, uv-spectrophotometry<sup>9</sup>, visible-spectrophotometry<sup>10</sup>, gas chromatography<sup>11</sup>, reversed phase HPLC<sup>12</sup>, ion-exchange chromatography<sup>13</sup> and titrimetry<sup>14</sup>.

Three titrimetric procedures for the determination of MPH and HDH in bulk samples and in pharmaceutical preparations are presented in this paper. The methods are based on the titration of the chloride content of the hydrochlorides of the studied drugs with AgNO<sub>3</sub> as the titrant and employing visual, potentiometric and conductometric end-point detection. The proposed methods offer the advantages of simplicity, good accuracy and precision.

Standard solutions of MPH and HDH (mg/ml) were pre-

pared by dissolving requisite amount of drug in double distilled water. A stock solution of silver nitrate (0.05 M) was prepared in double distilled water and standardised by Mohr method<sup>15</sup>. The solutions of lower concentrations were obtained by appropriate dilution of the stock solution. The solutions were stored in amber coloured bottles and kept in dark when not in use. A 5% solution of potassium chromate and 1% solution of sodium tetraborate were prepared using analytical reagent-grade chemicals in double distilled water.

To a 10 ml aliquot solution containing 4-10 mg of MPH or 5-10 mg of HDH, 1% sodium tetraborate solution was added to adjust the pH to 6.5-7.0 followed by 1 ml of 5% potassium chromate and titrated with 0.01 M AgNO<sub>3</sub> to the first appearance of buff colour due to silver chromate. An indicator blank was determined by suspending about 100 mg of calcium carbonate in about 10 ml of double distilled water containing 1 ml of 5% potassium chromate. In potentiometric end-point detection, a 25 ml aliquot containing 5-25 mg of MPH or 5-20 mg of HDH was titrated with AgNO<sub>3</sub> (0.01 M), the latter being added in 0.1 ml increments near the equivalence point. The equivalence point was located by the graphical method. Alternatively, a 25 ml aliquot of solution containing 5-25 mg of either drug was titrated conductometrically by adding 0.25 ml increments of 0.01 or 0.02 M AgNO<sub>3</sub> solution.

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