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ESSENTIAL OIL FROM LEAVES, SPIKES AND SEEDS OF *PERILLA OCIMOIDES* L.

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Abstract

Essential oil from the leaves, spikes and seeds of *Perilla ocimoides* L. were analyzed by GC-MS. Twenty four compounds were identified in the leaf oil, the major components were Cuminal (60.5%) and 2-allyl-4-methyl phenol (14.1%) followed by Linalool (10%) and Caryophyllene (4.6%). Out of twelve compounds identified from the spike oil the major compounds were Verbenone (33%), 1,5,9-Undecatriene, 2,6,10-trimethyl (15.5%), Caryophyllene (15%), β-Linalool (14%), α-Farnesene (4.8%), Benzaldehyde, 4-(1-methylethyl) (4.7%) and Germacrene D (4.3%). The seed oil contains twenty three compounds of which the major compounds were Caryophyllene (21%), Verbenone (16.8%), 1,5,9-Undecatriene, 2,6,10-trimethyl (13.6%), Cuminal (13.5%), α-Farnesene (8.6) and Germacrene D (7.8%).

Perilla ocimoides L. (Family: Labiatae) is a traditional crop of China, India, Japan, Korea, Thailand and other Asian countries. In Bangladesh it is cultivated in the Chittagong Hill tracts by the tribals. The seed and seed oil is used for cooking, as a drying oil and as a fuel. The foliage is used as a pot herb, for medicine and for food colouring. Seeds contain drying oil used in paints, varnishes, linoleum, printing ink and lacquers and for protective waterproof coatings on cloth.

The volatile oil from foliage and spike is used as a flavouring agent, in which perilla aldehyde is the desirable flavouring compound. One of the aldehyde isomers is 2000 times as sweet as sugar and four to eight times as saccharin (Guenther 1949). Perilla alcohol, prepared from perilla aldehyde, is used in fragrances, and has legal food status in the United States. Misra and Husain (1977) reported that a *Perilla* line from Bangladesh is a potential commercial source of rosefuran, a compound of interest in flavouring and perfumery.

Seeds of the plants were first collected from Chittagong Hill Tracts and sown in the experimental plots of BCSIR and subsequent materials were collected from the platns raised. there in 2004. The oil was isolated by hydro distillation method for 4 hrs using Clevenger apparatus. The oil obtained was dried over anhydrous sodium sulphate.

The essential oils from *P. ocimoides* were analyzed by GC-MS electron impact ionization (EI) method on GC-17A gas chromatograph (Shimadzu) coupled to a GC-MS QP 5050A Mass Spectrometer (Shimadzu); fused silica capillary column (30 m × 2.5 mm; 0.25 μm film thickness), coated with BD-1 (J&W); column temeprature 50°C (5 min) to 200°C at the rate of 3°C/min; carrier gas, helium at constant pressure of 100 Kpa. Acquisition parameters full scan; scan range 40-350 amu. The compounds were identified by comparing with the NIST library data.

Twenty four compounds were identified in the leaf oil of which the major compounents were Cuminal (60.5%) and 2-Allyl-4-methyl phenol (14.1%) followed by Linalool (10%) and Caryophyllene (4.6%). Among the twelve compounds present in the spike oil and major compounds were Verbenone (33%), α-Farnesene (4.8%), Benzaldehyde, 4-(1-methylethyl) (4.7%) and Germacrene D (4.3%). The seed oil contains twenty three compounds of which the major compounds were Caryophyllene (21%), Verbenone (16.8%), 1,5,9-Undecatriene, 2,6,10-trimethyl

(13.6%), Cuminal (13.5%), a-Farnesene (8.6) and Germacrene D (7.8%). The oil from various parts can be used as source of Cuminal, Verbenone and Caryophyllene.

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