

A STUDY OF THE ESSENTIAL OILS OF
NUTMEG AND MACE (MYRISTICA FRAGRANCE)
BY COMBINED GC-MS ANALYSIS

P.A. Paranagama, A.L. Jayawardena, G.S. Jayatilake
A.M. Mubarak, U.M. Senanayake and S. Wimalasena*
Ceylon Institute of Scientific & Industrial Research, Colombo
*Dept. of Chemistry, University of Kelaniya

The essential oils of both nutmeg and mace have been previously studied using packed column GC^{1,2}. The work on Sri Lanka oil of nutmeg¹ reports the identification of about 30 components which have also been reported from oil of nutmeg West Indies and East Indies². The work presented here is a comparative study of Sri Lankan nutmeg and mace oils using capillary GC combined with mass spectrometry. Of the 63 peaks recorded on the chart 44 were identified using the mass library facility. The compounds previously reported in oil of Sri Lanka nutmeg¹ oil were confirmed while a number of other compounds not previously reported were identified. Among them α -ylangene, linalyl acetate, β -caryophyllene, myristic acid were present in small quantity (0.4%-1%) while the rest were found in trace amounts. The volatile constituents in both nutmeg and mace were very similar but quantitative composition differed among the constituents. Total monoterpene content plus 1,8 cineol makes up 61% of the oil of nutmeg and 65% of oil of mace. The only significant oxygenated terpene was terpenen-4-01 (11.5% and 14.6%) respectively while ester and sesquiterpenes were present in only small amounts. The phenyl propanoids were the other group of compounds which were present in relatively high amounts. Among these elemicin and myristicin were found in nutmeg (4.9% and 9.2%) and in mace (3.4% and 5.2%) while methoxy eugenol, methyl eugenol and methyl isoeugenol were detected only in trace amounts. This study reveals somewhat higher elemicin and myristicin content than reported previously¹ even though the raw material was obtained from commercial sources. Since specimen of oil nutmeg from West Indies and East Indies were not available, the comparative study could not be extended to these products. However it is reported that myristicin content of Sri Lankan nutmeg oil is lower than that of the East Indies type and higher than the West Indies type while elemicin content is higher than that of the East Indies type and lower than the West Indies type¹. Other than these differences the composition of the various nutmeg oils appear to be similar to one another.

The authors wish to NARESA for a grant (RG/87/C/5)

This is a part of M.Phil degree work by P.A. Paranagama.

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