D-06: A Chemical evaluation of citronella cultivars in Sri Lanka

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Ceylon Citronella, *Cymbopogon nardus* Rendle, commonly known as Lenabatu or Heenpengiri has been cultivated in Sri Lanka as an essential oil crop since the 17th century for the export market. The extent of citronella cultivation has decreased from 20,000 ha in 1890 to 3064 ha in 1997 in the Hambantota district due to Java Citronella, *C. winterianus* Jowitt (Mahapengiri) oil which is superior in quality entering the market from countries like Indonesia and Vietnam. When compared to hardy Heenpengiri, Mahapengiri needs more attention, more fertile soil and better agroclimatic conditions. The latter cannot withstand adverse weather and sandy soil conditions in areas like Hambantota District. Therefore, a screening programme was carried out to select better lines from existing cultivars with good quality and higher oil yields to develop the citronells industry in Sri Lanka.

Ninety six citronella lines from different parts of the island including plantations and germplasm collections were selected for this study. Essential oils from leaf samples of selected lines were distilled to determine the oil content. The extracted oil was analysed by gas chromatography. The oil content ranged from 0.5 to 2.65% w/w. A very high variation in oil composition was observed. The major important constituents in citronella oil namely, Citronellal and Geraniol varied from 0.30 to 17.60% and from 18.04 to 67.46% respectively. Citronellol ranged from 4.59 to 18.44%. Total geraniol content which is the most important parameter for the quality of citronella oil was in the range of 41.32 to 94.43%.

From the above study, seven lines with oil content above 1.4% and total geraniol content above 80% were selected namely, KS 11, KS 13, KS 15, KS 23, KS 24, MT 24 and MT 10 and it is suggested that these lines be used in the multiplication programme for planting materials. It is also suggested that the selected lines be bulked and distributed among the citronella growers to minimise the risk of adverse climatic factors and pathogenic problems.