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A STUDY ON THE CONDENSATE FLOW DURING THE DISTILLATION
OF LEMONGRASS (*Cymbopogon flexuosus*)

Lemongrass oil, which bags the bulk of the foreign exchange of essential oil, is extracted by the distillation of lemongrass (*Cymbopogon flexuosus*) Guenther (1948) has stated that the yield of essential oils from crops depends upon the soil, climate, frequency of harvests, pre-treatment before distillation, method of distillation and recovery of oil. It is the usual practice to correlate the completion of distillation with the time taken for distillation. Other things being constant the percentage of recovery of oil from the grass varies according to the weather conditions, quality of firewood and the condition of the material. Hence it is more scientific to correlate the completion of distillation to the quantity of condensate water rather than the time taken from the commencement of distillation. Belcher (1965) found that the rate of extraction of oil is directly proportional to the condensate flow and estimated that the condensate

Table 1

Average of 10 distillations

Duration	Monsoon season			Summer season		
	Quantity of condensate water (litres)	Quantity of oil (cc)	Percentage of recovery	Quantity of condensate water (litres)	Quantity of oil (cc.)	Percentage of recovery
1. First 15 minutes	4.212	78.2	1.856	2.728	57.2	2.097
2. Second "	5.478	95.6	1.745	4.947	109.9	2.221
3. Third "	5.880	66.6	1.132	5.221	71.7	1.373
4. Fourth "	5.925	32.0	0.540	5.832	46.8	0.802
5. Fifth "	6.674	23.9	0.358	5.236	27.1	0.517
6. Sixth "	6.191	13.6	0.219	4.913	17.0	0.346
7. Seventh "	5.878	8.6	0.146	5.149	11.4	0.221
8. Eighth "	5.517	3.9	0.071	4.602	6.4	0.139
For 2 hours	45.755	322.4	0.704	38.628	347.5	0.899

flow of 0.31 lb/hour/lb. of clove buds to be economical. A study has been conducted in the Lemongrass Research Station, Odakkali in order to derive an economic condensate flow for the distillation of lemongrass.

80 Kg. of lemongrass was distilled in 486 litres capacity stills with 96 litres of water in the bottom. The condensation water and oil collected in every 15 minutes was measured upto 2 hours. The data collected during monsoon and summer seasons are given in Table 1.

Out of 322.4 cc. of oil obtained only 12.5 cc (3.8%) is collected during the last half an hour during monsoon season. It was 17.8 cc (5.1%) during the Summer season. Excluding the condensate flow for the collection of these oils, 34.36 litres during monsoon and 28.877 litres during the summer season can be taken as the economic condensate flow for the collection of oil. In other words 0.28 litres per hour per Kg of material during the monsoon season and 0.24 litres per hour per Kg. of the material during the summer season is the economic condensate flow for the extraction of lemongrass oil.

സംഗ്രഹം

ഇഞ്ചിപ്പല്ലു വാറ്റുന്നതിനു് അനുചരിക്കുന്ന സമയത്തേക്കാൾ സാദ്രീകരണ ജലത്തിന്റെ അളവിനാണു് കൂടുതൽ ശാസ്ത്രീയമായ അടിസ്ഥാനമെന്നതിനാൽ, അതിനെക്കുറിച്ചു് ഇഞ്ചിപ്പൽ ഗവേഷണകേന്ദ്രത്തിൽ നടത്തിയ പഠനങ്ങളിൽ, മഴക്കാലത്തു് ഒരു കിലോ പുല്ലിനു്, മണിക്കൂറൊന്നിനു് 0.28 ലിറ്റർ സാദ്രീകരണജലം എന്നുമാത്രം, വേനൽക്കാലത്തു് ഒരു കിലോ പുല്ലിനു് 0.24 ലിറ്റർ സാദ്രീകരണജലം എന്നതേ തുമാണു് ഉത്തമമെന്നു് കാണുകയുണ്ടായി.

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