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MICROFLORA OF DRIED SPICES

The dried spices are not subjected to spoilage normally although mold growth during their drying may give them a heavy load of mold spores Frazier, 1967). Heavy load of coliform bacteria and mold spores on dry spices may create intestinal disturbances. No information is available on the microbial load of Cardamom (*Elettarea cardamomum* Mat.), Cloves *(Eugenia caryophyllate* Thum.) and Cinnamon *(Cinnemomum zeylanicum* Bl.) the three important spice crops grown in Kerala Attempts were therefore made to enumerate the bacterial, fungal and actinomycete population of the above dried spices in the Horticultural Research Station, Ambalavayal. The enumeration of the population of bacteria actinomycetes and fungi was carried out using soil extract agar, Kuster's agar and Martin's rose bengal streptomycin agar respectively and following the serial dilution technique. Results are presented in Table 1 and 2.

Table I. Population of different microorganisms on the dried Cardamom, Cloves and Cinnamon (population numbers expressed as 10^{+}/g dried sample).

Organism	Population.		
	Cardamom	Clove	Cinnamon
Bacteria 10^{6}/g	5 33	nil	1.06
Actinomycetes !0 ^{4}/g	nil	nil	nil
Fungi 10 ^{5}/g	8-00	4.66	4.93

In the case of cloves bacterial population was absent. Actinomycete population could not be detected in any of the spices studied. The presence of eugenol and aldehydes in these spices might be the reason for this (Frazier, 1967).

Table 2. Morphological grouping of the fungal flora present on dried Cardamom, Cloves and Cinnamon. (Expressed as percentage of to tal flora)

Fungus.	Cardamom	Cloves	Cinnamon
Penicillium Sp	60.33	70.33	50.81
Aspergillus Sp.	25.00	25.33	21.62
Mucor Sp.	5.33	nil	2.66
Torula Sp.	3.00	nil	14.91
Fusarium Sp.	6.33	4.33	10.00
Miscellaneous.	–		1.00

It was seen that the predominant groups of fungi present on all the spices studied were species of *Penidllium* and *Aspergillus*.

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