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A NOTE ON THE OCCURRENCE OF "BUTTERY" KERNEL IN COCONUT

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CATALOGUED

A NOTE ON THE OCCURRENCE OF "BUTTERY" KERNEL IN COCONUT

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ONE of the important items of research in progress at the Central Coconut Research Station, Kasaragod is the introduction and study of coconut varieties found in other coconut growing countries of the world. Varieties obtained from places like Federated Malaya States, Fiji, New Guinea, Philippines, Laccadives, Ceylon, Cochin China, Straits Settlements and Andamans, had been planted at the Station in the years 1940 and 1941 and they are in bearing. Twenty-one of these varieties are being studied in detail for their yield, size, shape and weight of nuts, yield and quality of copra, oil content, etc., during different seasons of the year.

In the course of the studies carried out in July 1953, a single nut out of ten from a mature bunch of the Philippine Laguna variety was found to exhibit certain peculiarities. It was found to have a "buttery" kernel in the place of the usual hard meat met with in ordinary coconuts.

The variety in which this feature was noticed came as the name indicates from Laguna Province in the Philippine Islands. This palm resembles the ordinary Tall variety in general growth and other characters except for the fact that the stem is slightly stouter. The nuts are green in colour and spherical in shape. This variety is found to yield on an average about 70 nuts per annum.

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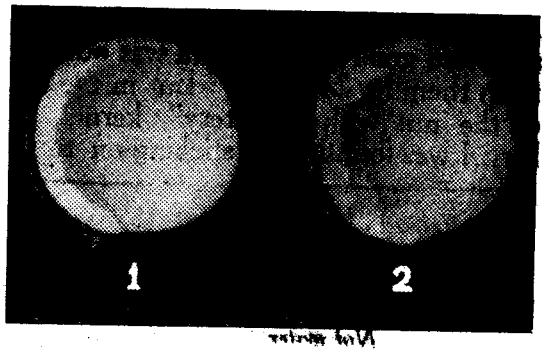

Internal view of nut with "buttery" kernel

The nut under record in this note was on opening found to contain a white and soft "buttery" kernel without the usual fibrous matter contained in the kernel of normal nuts. The internal surface of the kernel appeared warty or rugged (see plate I). The kernel was not sweet, but had some oily taste and flavour. There was no symptom of any mould attack nor did it emit any bad odour indicating decay. The nut contained a more or less viscous liquid which did not have the usual taste of the coconut water. It had the smell of coconut oil. The particular bunch from which this nut was obtained had in all 10 nuts and all the nuts were alike in their external appearance and shape. The weight and volume recorded for the two sorts of nuts of the same bunch are given below,

Description	Weight of unhusked nut in gms	Volume of unhusked nut in cc	Weight of husked nut in gms	Volume of husked nut in cc
1 Nut with "buttery" kernel ..	1718	3400	1058	1050
2 Normal nuts (average of 9 nuts) ..	1673	3227	1054	1016

The cut halves of the nut were placed in the copra kiln along with those of other normal nuts for preparing copra. Within twelve hours, the kernel of the normal nuts could easily be removed from the shell and good quality copra was obtained from them in 24 hours. But in the case of the nut with "buttery" kernel, the kernel was found to be sticking on to the shell even after 24 hours of drying. Though the outer layer of the kernel appeared to be dry and hardened, it was found to be soft and pliable.

The meat and the viscous liquid of this particular nut along with those of a normal one were analysed by the Analytical Chemist with the following results.

Nature of observation	Nut with buttery kernel	Normal nut
Nut water		
1 Specific gravity ..	1·024	1·017
2 Total solids ..	6·02%	4·15%
3 Material precipitated by alcohol ..	1·10%	0·03%
4 Acidity ..	Nil	Nil
5 Viscosity—time of flow of 50 cc. of nut water under identical conditions ..	535 seconds	4·04 seconds
Meat		
1 Dry matter content ..	22·31%	39·64%
2 Oil content percentage (moisture free basis) ..	58·45	67·11

It is seen that the percentage of total solids and material precipitated by alcohol are appreciably more in the water of the nut with "buttery" kernel than those of the normal nut. The oil content of the "buttery" kernel was less by 8·66 per cent than in the normal nut.

The embryo of this particular nut resembled the embryo of the normal nut in shape, size and structure.

This peculiarity is found to resemble the Makapuno coconut described by Juan P. Torres in his paper "Some notes on Makapuno coconut and its inheritance". According to him "The Makapuno is a special type of coconut in which the meat almost fills the cavity of the shell. Instead of hard crispy meat and milk found inside ordinary coconuts, there are in the Makapuno nuts, an outer portion which is white and soft substance corresponding to the meat of ordinary nuts and in the inner portion a viscous liquid somewhat transparent or pellucid". The author has also observed that the kernel of the

Makapuno nut is poor in oil content which is also the case in the nut referred to in this note. J. S. Patel (1938), has also referred to the stray occurrence of a nut in the West Coast of India, characterised by the absence of the usual nut water but filled with a jelly of the consistency of thick curd. This is locally known as "Thairu thengai" (curd coconut). Mention of the occurrence of these types of kernel in coconut has also been made by Narayana and John (1949). It is not definite whether both the "Thairu thengai" and Makapuno nuts are of the same type. Kernel with a rugged surface or partially formed kernels is also met with in certain types of barren nuts produced by some trees of the ordinary West Coast Tall variety. But in these cases, the nuts are devoid of water and the kernel is generally firm and hard.

It is reported that trees producing Makapuno nuts are met with in the Laguna Province and in certain Municipalities of Tayabas Province of Philippines. Copeland (1931), has also mentioned of a nut similar to Makapuno occurring in Java.

Makapuno nuts are said to be in great demand for the preparation of sweet candies and many other preparations and to command high price 15 to 20 times or more than that of the ordinary nuts.

The occurrence of this type of nut in India has not so far been recorded. As the variety in which the peculiarity was observed at the Station was originally from Laguna, it may be concluded that this nut is exhibiting the Makapuno character described by Juan P. Torres.

This is the first time that such a nut resembling the Makapuno type has been obtained at this Station. The particular tree of Philippine Laguna variety from which this nut was obtained is being carefully observed for the occurrence of such nuts.

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