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## VARIATION FOR LEAF POLYPHENOLS IN COCONUT CULTIVARS

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Leaf polyphenols were taken as a population parameter to describe the genetic variability observed in coconut cultivars based on earlier work in coconut (Jay *et al.*, 1989) and other seasonal crops (Jambunathan and Mertz, 1973; Eggum, 1977).

Thirty-six cultivars belonging to eight different geographical origins, namely, Africa, America, Pacific Ocean Islands, Malaysia, Indonesia, Philippines, India and Sri Lanka were included in the study. A minimum of seven palms per cultivar were sampled. Samples were taken from the 14th leaf and total phenols estimated using the method of Bray and Thorpe (1954).

The polyphenol levels showed significant differences among the varieties studied (Tables 8.1 and 8.2). Chowghat Green Dwarf and Kappadam, two cultivars from India had higher phenol levels than all the others. Maximum variability was also seen among the cultivars from India which ranged from 4.72 for Laccadive Ordinary to 10.82 for Chowghat Green Dwarf. The higher phenolic levels associated with Chowghat Green Dwarf can be correlated to its relatively better tolerance to root (wilt) disease.

The cultivars from Sri Lanka (Gonthembilli and Ceylon Tall), Laccadive Micro from Lakshadweep Islands and also those from Pacific Ocean Islands (Guam I, Guam II, Fiji Tall and British Solomon Islands) showed lower phenolic levels.

Significant variations are also seen based on different geographical origins especially with regard to cultivars belonging to Africa (Kenya Tall, Zanzibar and Seychelles) and Indonesia (Java Tall, St. Kudat and Borneo).

The dwarf cultivars invariably had higher phenolic levels as compared to the tall, irrespective of the geographical origin. This higher content found associated with the dwarf cultivars and the wider variation observed among the cultivars from India need to be studied in detail. In addition, more in-depth

studies based on the individual phenolic constituents are required to draw inferences as to the variability seen.

Table 8.1: Leaf polyphenols in exotic coconut cultivars

<i>Origin</i>	<i>Cultivar</i>	<i>Polyphenols (mg/g fresh weight)</i>
Africa	Kenya Tall	7.44
	Zanzibar	9.83
	Seychelles	6.31
North Central America	Jamaican San Blas	8.10
	St. Vincent	8.09
	Jamaican Tall	8.00
Pacific Ocean Islands	Fiji Tall	5.44
	Guam I	5.46
	Guam II	6.15
	British Solomon Islands	6.20
Philippines	Phil. Ordinary	7.56
	Phil. Laguna	7.69
	San Ramon	8.11
Indonesia	Java Tall	7.06
	St. Kudat	6.52
	Borneo	8.06
Sri Lanka	Gonthembilli	4.53
	Ceylon Tall	5.02
Malaysia	SS Green	6.85
	Klappawangi	8.05
	Federated Malay States	8.10
	Malayan Green Dwarf	9.23
	Malayan Yellow Dwarf	9.78
	Malayan Orange Dwarf	9.79

Table 8.2: Leaf polyphenol levels in indigenous cultivars

<i>Cultivar</i>	<i>Polyphenol levels (mg/g fresh weight)</i>
West Coast Tall	8.24
Laccadive Micro	7.98
Laccadive Ordinary	4.72
Andaman Ordinary	6.83
Kappadam	10.74
Gangabondam	8.53
Benaulim Tall	7.84
Chowghat Green Dwarf	10.82
Chowghat Orange Dwarf	8.26
Kulasekaram Green Dwarf	8.79
Kulasekaram Orange Dwarf	9.34
Kulasekaram Yellow Dwarf	9.02

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