which was found to be resistant to n-UV radiation as it showed no change in the toxicity of the culture filtrate and dry weight of mycelium. The result of present investigations are supported in arhar[4], in soybean[7,8] and in paddy seeds[11].

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Phenols and oxidase in the roots of healthy and 'Anabe' affected arecanut palms

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'Anabe' caused by *Ganoderma lucidum* (Leys) Karst is a serious disease on arecanut (*Areca catechu* L.) palms. The annual loss is estimated to be 94 per cent in the neglected gardens[2]. The disease is primarily soil borne and the fungus spreads through root contact. The initial symptoms appear in roots and the affected roots are discoloured, brittle, and dry. The aerial symptoms of the disease could be seen 5 to 6 months after the initiation of infection. This note reports the levels of phenols and their oxidase in the roots of diseased and healthy palms.

Arecanut gardens at Kyathsandra near Hirehalli (Karnataka), an endemic area for the 'Aanbe' disease were selected. The root samples were collected twice (April and July, 1978) from the stumps, diseased but standing palms (D.S.P.) and from the surrounding healthy palms (H.P.). A total of 25 diseased (5 stumps + 20 D. S. P. and 92 H.P.) were sampled for the purpose. Alcohol extractions of the roots were made using 80 per cent ethanol and total phenols estimated by the method of Bray and Thorpe[1] employing Folin Ciocalteau reagent. Phenols in the samples were calculated from the catechol standards and expressed in mg/100 g oven dry tissue. Polyphenol oxidase was extracted from roots with 0.1 M sodium phosphate buffer at pH 7.1[7] and the enzyme activity determined by the changes in absorbance of catechol in the reaction mixture at 495 nm[6]. The enzyme activity was expressed in terms of units (u), one unit is that amount which will catalyze the transformation of one micromole of the substrate per min. at 28 $\pm$ 1°C.

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TABLE 1 : Total phenols and polyphenol oxidase in roots of healthy and 'Anabe' affected palms

Source of roots	Total phenols (mg/100g)*		Polyphenol oxidase (units)	
	April	July	April	July
	1978	1978	1978	1978
Stumps	119.33	93.00	1113.33	500.00
Healthy palms surrounding the stumps	527.67	412.67	4307.67	2280.00
C.D. (= 0.05)	60.50		827.11	
Dlseased standing palms	113.71	137.71	1207.71	894.28
Healthy palms surrounding the diseased standing palms	361.86	390.00	3484.14	1981.78
C. D. (P = 0.05)	35.34		740.99	

*Weight expressed on oven dry basis.

The results (Table 1) reveal that while the total phenolic content did not vary much during two samplings (April and July) the polyphenol oxidase activity decreased considerably in the second sampling (July). However, the roots of H. P contained significantly highest concentrations of total phenols and polyphenol oxidase than the stumps and D.S.P. Phenols have been implicated as active resistant factors in the defense mechanism of many host-parasite interactions and it is generally assumed that resistant plants are characterstic of high phenols[3,4,5,8]. Polyphenol oxidase which oxidises phenols to more toxic quinones plays a vital role in suppressing the development of pathogen and consequent occurrence of disease[4,8]. A crude preparation of phenols from healthy palms inhibited the *in vitro* growth of *G. lucidum* (unpublished). The role individual phenols and other resistant factors of host on the pathogen is to be studied in detail.

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