EFFECT OF TODDY TAPPING ON THANJAVUR WILT DISEASE OF COCONUT

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ABSTRACT

Field experiments were conducted to study the effect of tapping on Thanjavur wilt affected coconut with particular reference to disease intensity and toddy production. It was evident that due to tapping, the intensity of disease was lowered down considerably when compared to control. The production of toddy by the diseased palms was found to be less with reduced sugar content affecting the quality.

INTRODUCTION

Tapping is a collective term referring to various operations of stimulating toddy yield from the inflorescence. The tapping of low yielding palms is a traditional practice by the farmers to realise some income. Thanjavur wilt is a serious disease of coconut, the cause of which is yet to be found out. The early visible symptoms of the disease is the exudation of reddish brown liquid from the base of the trunk in small patches and drooping of leaves and lethality of the palm in final stages (Bhaskaran *et al* 1982). Thanjavur wilt is widely prevalent in almost all coastal districts of Tamil Nadu and the alarming nature of the disease is the final death of the palm thus causing great havoc to the farmers. The stem bleeding of the wilt affected palms may be suspected due to a pressure developed inside the trunk of the tree. It has been reported that tapping of palms variously influences the yield of coconut (Menon and Pandalai, 1958). Tapping of palms may lead to the release of pressure responsible for bleeding. This, in turn, may lower down the disease at the initial stages of infection. Hence an attempt was made to study the effect of tapping on Thanjavur wilt of coconut.

MATERIAL AND METHODS

Ten palms in each group, namely of diseased and apparently healthy, were selected in a Thanjavur wilt endemic area of Thambikkottai, Thanjavur district. Prior to tapping, the initial disease index was recorded as per the procedure described by Vijayan and Natarajan (1975). Monthwise observations on disease progress were also made during the period of tapping and also five months after completing the tapping in order to assess the after effect of tapping on wilt incidence.

RESULTS AND DISCUSSION

The quantity of toddy produced by the diseased palms was considerably less (43.5 L) when compared to healthy palms (69.6 L) (Table 1). To start with, the toddy production was more or less equal in both diseased and healthy palms, but gradually it was on the decline and at the end of tapping, the mean quantity of toddy produced by the diseased

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palms was lower than that of the healthy palms.

The sugar content (Nelson, 1944) also showed a drastic reduction in the diseased palms.

Our earlier work on tapping of palms affected by Thanjavur wilt (Vijayaraghavan *et al* 1986) had also shown similar results of lower quantity of toddy with lesser sugar content in the diseased palms. The lower quantity of toddy produced by the diseased palms may be due to the poor uptake of water with lesser transpiration rates. The possibility of involvement of vascular toxins in hindering the upward movement of water in the diseased palms (Vijayaraghavan *et al* unpub.) may be an yet another cause for lower quantity of toddy produced by the diseased palms. The effect of tapping on disease incidence showed some interesting observations. The initial disease index at the start of tapping was comparatively higher (16.6) in the diseased tapped palms when compared to diseased untapped control palms (11.1). Tapping was continued from September 85 to February 86 during which period monthly observations on disease progress were recorded. The time trend of disease progress is presented in Fig. 1. The diseased tapped palms although registered higher initial disease index show a very gradual increase in the disease index which attains a maximum of only upto 18.2 till such time as tapping is continued. On the contrary the diseased untapped control palms which registered lower initial disease index, recorded a steady increase in disease index (vide Fig. 1) and reached a maximum of 17.0 during six months period of tapping. The tapping was discontinued at the end of February 1986. The observations on post-treatment intensity of disease showed that the disease index continue to increase steadily and reaches a maximum of 44.8 in the case of untapped palms. However in the tapped palms the increase was only upto 29.0. The impact of tapping was thus discernible even after five months of discontinuing the tapping. The

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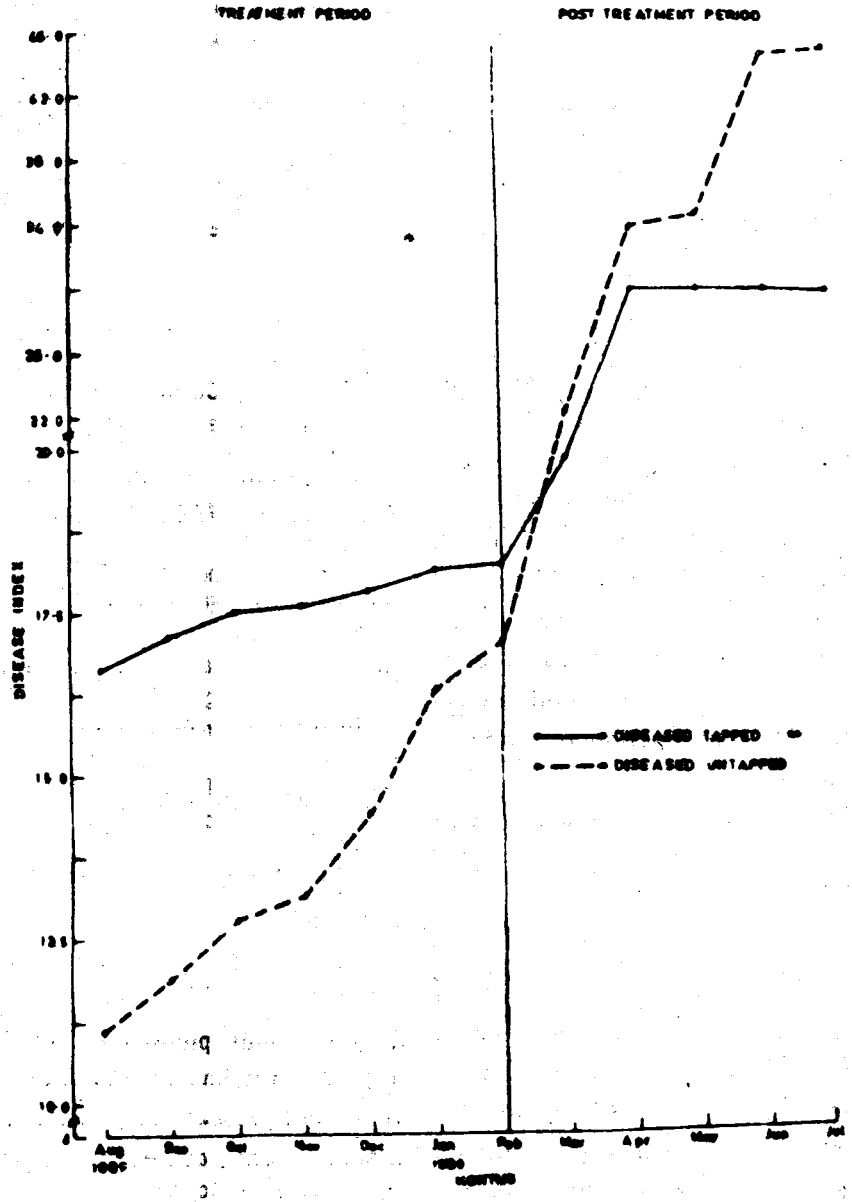

(Fig: 1)

exact role of tapping in reducing the severity of Thanjavur wilt incidence is not known except that the flow of inflorescence sap might cause to release the pressure developed inside the trunk. However more critical studies are needed to assess the changes in the physiology of the host that alleviates the severity of the disease subjected to tapping.

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TABLE - 1

Effect of tapping on quantity of toddy produced, sugar content and disease index in Thanjavur wilt affected and healthy coconut (Mean of 10 palms)

Category	Mean quantity of toddy produced (l)	Sugar content in toddy (%)	Disease index		Post-treatment Disease index
			Initial	Final	
Healthy	69.6	13.1	—	—	—
Diseased tapped	43.5	8.2	16.6	18.2	29.8
Diseased untapped	—	—	11.1	17.0	44.8