Agric. Res. J. Kerala, 1987, 25 (1) 140—141

ANTHOLYSIS IN PEPPER *(PIPER NIGRUM* L.)

A new type of disorder which is not reported hitherto was observed in a few pepper plants. The gardens affected by this malady are located at Poothady, a place near to Manantody in Wynad district, Kerala According to the cultivators, who own the gardens, the malady made its appearance in 1984 in a single garden, and that too only in seven plants. The symptoms first appeared on the terminal shoots, and later spread to the whole plant. The affected plants debilitated and did not survive more than an year in most cases. All varieties grown in the gardens viz., Panniyur 1, Karimunda, Balankotta, Kalluvally etc. were seen affected showing the non-selectivity of the disorder. Almost all the plants in the garden where the malady first appeared have died indicating its infectious nature. The disorder has now spread to two other adjoining gardens. In one of the gardens, pepper is grown as an intercrop in coffee plantation and in the other, it is grown as a pure crop. The vines are trained on a variety of trees like silver oak, dadaps, mango etc. All the pepper plants, both affected and healthy were heavily infested by thrips.

The symptom of the malady first appeared as an yellowing of the leaves on the terminal shoots. The fresh leaves produced were much smaller in size than the normal ones and pale yellow in colour (Fig.1). These leaves had a twisted appearance too in some cases. When all the older leaves were fallen off and the new affected leaves took their place; the whole plant looked like a new variety with small and paler leaves.

The internodes were much shorter than the normal in the freshly growing shoots. The lateral branches (plagiotropes) produced several branches (upto six, was observed) from the same node. These auxiliary branches were erect with very short internodes and still smaller leaves having a higher length: breadth ratio. As a result, the appearance of the terminal portions of the laterals roughly resembled that of Witch's broom, wherever several branches arose from the same node.

Inflorescences were at first produced as a normal spike, at least in some cases. Even the dehisced anthers could be observed in some flowers. As the malady advanced, carpels elongated and were transformed into shoots with secondary branching and very small leaves. These leaves and branches spread in all directions giving the spike a roughly rosette appearance. The spikes varied in appearance depending upon the severity of transformation it had attained. (Fig.2) Due to this phyllody-like transformation the yield was considerably reduced at first and at the terminal stages of the malady it was none at all.

The older shoots and the root system were apparently healthy with no visible symptoms of discolouration or malformation.

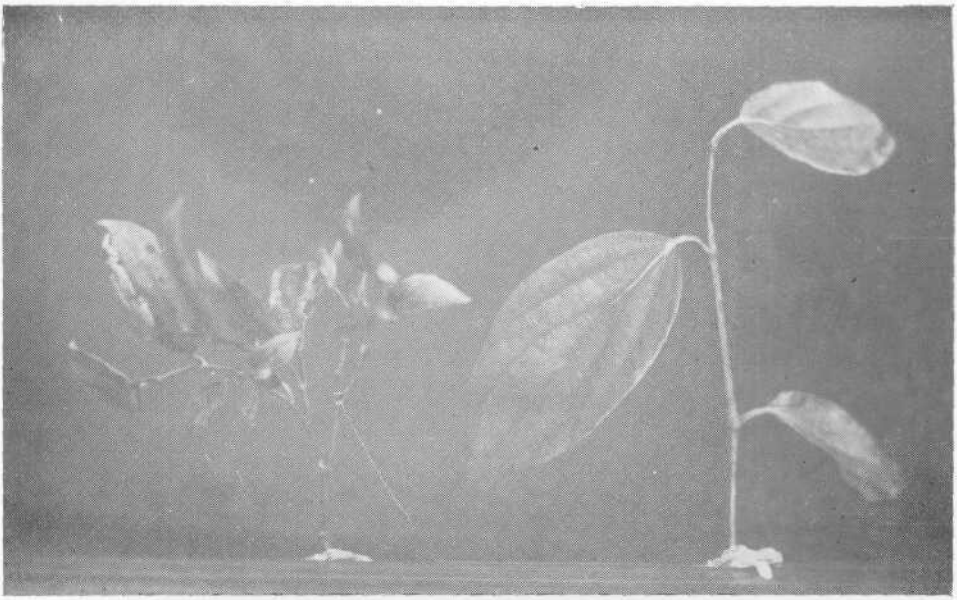

Fig. 1 A malformed twig (left) and healthy twig (right)

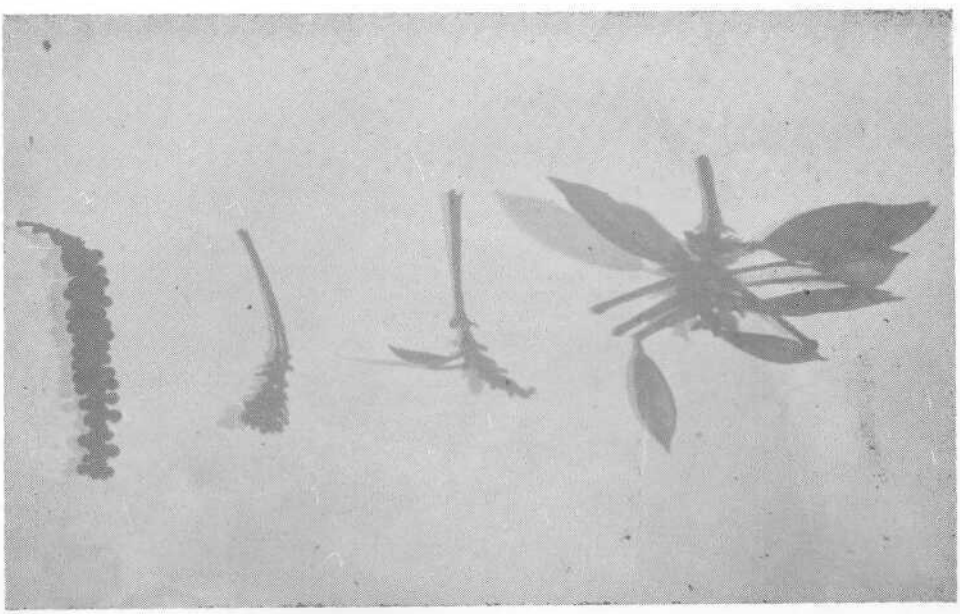

Fig. 2 A normal spike (extreme left) and progressive stages of malformation (2 to 4)

Though the etiology of the disorder is yet to be ascertained and established the nature of the symptoms and its infectious habit suggest that a virus or mycoplasma like organism may be involved.

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