

RESEARCH NOTES

**EFFECT OF BUNCHY-TOP VIRUS INFECTION ON THE
FREE AMINO ACID AND AMIDE COMPOSITION
OF BANANA LEAVES***

Virus infection is known to bring about various biochemical changes in the host plant including qualitative and quantitative changes in the free amino acids. Results of determinations made of the free amino acids and amides present in the leaves of healthy and bunchy-top virus infected banana plants are presented in this paper.

Sixty days old banana plants (*Nendran* variety) were inoculated with the virus, by feeding viruliferous aphids (*Pentalonia nigronervosa* Coq.). Typical bunchy-top symptoms appeared on the inoculated plants in 35 to 40 days after inoculation. Alcohol extracts of the leaves were taken 60 days after inoculation. Free amino acids and amides were analysed by one-dimensional paper chromatography, using n-butanol-acetic acid-water (4: 1: 1v/v/v) as developing solvent (Block *et al.* 1953). Ninhydrin (0.3 percent in acetone) was used as colour reagent. Known amino acids and amides were co-chromatographed along with the samples in order to establish their identity in the leaves.

Healthy banana leaves were seen to contain asparagine, aspartic acid, alanine, tyrosine, methionine and isoleucine. Except tyrosine all the others could be detected in the leaves of diseased plants. The reason for complete absence of tyrosine in diseased leaves is not understood. Andreae and Thompson (1950) had noted that tubers of potato plants infected with leaf roll virus contained very little tyrosine as compared to those of healthy plants. Visual comparison of the chromatograms revealed that the diseased leaves contained higher quantities of asparagine, aspartic acid, alanine, methionine and isoleucine, than the healthy leaves, as indicated by the size and colour intensity of the spots. A number of reasons have been attributed to the increase in amino acids consequent to virus infection in plants. Selman *et al* (1961) considered accumulation of amino acids to be an indication of a check to the growth and protein synthesis of the host, while Hayashi (1962) attributed it to the enhanced amino acid system of virus infected plants.

*From the M.Sc. thesis submitted by the senior author to the University of Kerala in 1969

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The authors wish to thank Dr. J. Sam Raj, Principal, Agricultural College and Research Institute, Vellayani, for encouragement.

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(Accepted : 30-6-1971)