A Study of the Amino-Acid Composition of the Pastures of Bombay

Knowledge of the nitrogen metabolism of plants is of importance for a proper understanding of the growth and development of plants themselves and for their evaluation as food for grazing animals. Therefore, an attempt has been made to investigate the amino-acid composition of a few pasture plants of Bombay. They are (1) Themeda triandra, (2) Pseudanthocleista heteroclita, (3) Ischaemum ciliare, (4) Dactylolentium aegyptium, (5) Heteropogon contortus, (6) Thelephogon elegans, (all belonging to gramineae); (7) Zornia diphylla, (8) Smithia sensita (leguminosae). Circular paper chromatography techniques\(^1\) have been employed for this purpose.

By running the chromatogram the following sixteen acids were identified in the grasses mentioned above. They are: leucine-isoleucine, phenyl alanine, valine, methionine, tyrosine, proline, alanine, glutamic acid, threonine, glycine, serine, aspartic acid, arginine, histidine, lysine, and cysteine.

In almost all the hydrolysates of the grasses the bands corresponding to phenyl-alanine, proline and tyrosine were faint, while those of glutamic and aspartic acids, alanine and leucines were intense. The legumes like Zornia diphylla and Smithia sensita showed all the sixteen amino-acids like the grasses but unlike the latter, except for phenyl alanine and tyrosine, all the bands of the amino-acids were intense. Our results also reveal that in both grasses and legumes there is a striking correspondence in the amino acid content of the hydrolysate. They do not show any unusual amino acids and the pattern is practically the same in both. This confirms the earlier observations made by other authors\(^2\).

It is interesting to point out in this connection that when equal aliquots of the hydrolysates of the grasses and legumes were spotted, the individual bands of the amino-acids of the legumes were considerably more pronounced than those of the former. This is obviously because the legumes have more nitrogen in their tissue and therefore contain more concentration of the individual amino-acids.

In conclusion it may be said that altogether sixteen amino-acids are present in the grasses and legumes investigated and the amino-acid pattern is the same throughout.

We wish to thank Dr. G.V. Joshi of Wilson College, Bombay, for his suggestions.

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Eingegangen am 10. April 1957.
