CONTRIBUTIONS TO THE STUDY OF THE SPIKE-DISEASE OF SANDAL (*SANTALUM ALBUM*, LINN.).

Part XIV. Study of Mosaics associated with spiked areas.

By Y. V. Sreenivasa Rao.

It was observed in a number of spiked areas that many of the weeds like Aegeratum and Gysekia Spp. were affected with mosaic. The absence of this disease from healthy areas was rather striking and in view of its similarity to and possible association with the incidence and spread of sándal spike, an investigation of the mosaic of aegeratum was undertaken. The present paper relates to the distribution of inorganic constituents and nitrogen metabolism in conditions of health and disease.

The inorganic constituents were estimated according to the A.O.A.C. (1925) methods. Nitrogen distribution was determined by the method of Van Slyke modified by Plimmer and his co-workers (*Biochem. J.*, 1925, **19**, 1004; *Ibid.*, 1927, **21**, 247). The results have been presented in Tables I and II respectively.

TABLE I

Expressed as percentages on moisture-free material.

	AREA			
	JAVALGIRI		AIYUR	
	Healthy	Diseased	Healthy	Diseased
Total nitrogen ...	3.92	4.53	4.65	3.40
Phosphoric acid (as P_2O_5)	0.78	0.43	1.88	0.89
Calcium (as CaO) ...	3.97	3.74	3.14	2.45

TABLE II

Percentages of total nitrogen.

	AREA			
	JAVALGIRI		AIYUR	
	Healthy	Diseased	Healthy	Diseased
Insol. Humin	7.84	7.92	2.53	7.46
Soluble Humin	1.91	1.42	0.78	1.23
Amide N	8.91	12.55	5.88	9.07
Free ammonia* ...	1.2	3.4	0.9	2.8
Total basic	13.84	14.53	16.50	19.73
Non-basic	60.10	60.50	67.89	61.18
Amino	48.67	56.0	65.33	57.51
Non-amino ...	11.39	4.5	2.56	3.67

* Estimated according to Grafe's method (*Z. Physiol. Chem.*, 1906, 48, 300).

Inorganic constituents (Table I) do not show any striking differences. Tissues of spiked sandal are characterised by a low content of calcium while aegeratum affected with mosaic contains about the same percentage of calcium as the corresponding healthy leaves. Diseased aegeratum leaves have, on the other hand, lower phosphorous contents than the healthy ones.

The distribution of nitrogen (Table II) shows that the disease is more allied to tobacco mosaic and spinach blight than to sandal spike, if the ammoniacal nitrogen is taken into consideration. There is a striking increase in the ammoniacal nitrogen in the diseased aegeratum leaves, while in the case of the spike-disease of sandal the ammoniacal nitrogen is not appreciably affected. The higher basic nitrogen characterising spiked sandal is absent from the diseased aegeratum.

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Department of Biochemistry.
Indian Institute of Science,
Bangalore.

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