

TABLE I

Solutions	1st	2nd	3rd	4th	5th	6th	7th	8th
<i>of 1764</i>								
1. Cr <sub>2</sub> O <sub>3</sub> %	9.05	9.83	3.94	6.63	6.15	5.25	4.58	2.70
2. Fe %	6.55	3.31	1.27	1.46	1.08	0.82	0.68	0.36
3. Cr <sub>2</sub> O <sub>3</sub> % calculated as above	18.25	19.82	7.94	13.37	12.40	10.58	9.23	5.44
4. Cr/Fe value	0.945	2.031	2.127	3.116	3.896	4.367	4.602	5.081
<i>of 1926</i>								
1. Cr <sub>2</sub> O <sub>3</sub> %	11.20	9.49	5.15	5.96	6.09	3.56	6.64	
2. Fe %	5.01	3.51	1.34	1.29	1.11	0.59	1.08	
3. Cr <sub>2</sub> O <sub>3</sub> % calculated as above	23.19	19.46	10.67	12.34	12.61	7.37	13.75	
4. Cr/Fe value	1.529	1.832	2.566	3.154	3.768	4.110	4.221	

TABLE II

Samples	1764			1926		
	1	2	3	4	5	6
Columns						
Composition of solutions of Table I	Composition of Col. 3 that of Col. 2	Solution Nos. 5, 6, 7 and 8	Composition in the mineral = 80% of ore	Solution Nos. 2, 3 and 4	Solution Nos. 5, 6 and 7	Solution Nos. 2, 3, 4, 5, 6 and 7
<i>In terms of the Constituents</i>	%	%	%	%	%	%
Cr <sub>2</sub> O <sub>3</sub>	29.49	18.68	48.17	20.51	16.29	36.80
Al <sub>2</sub> O <sub>3</sub>	3.17	1.09	4.26	5.53	4.14	9.67
Fe <sub>2</sub> O <sub>3</sub>	3.25	2.89	6.14	3.01	2.37	5.37
FeO	12.65	1.19	13.84	5.19	1.43	6.62
MgO	2.80	5.44	8.24	5.47	5.75	11.22
Total (= % of ore)	51.36	29.29	80.65	39.71	29.98	69.68
Cr/Fe Value	1.667	4.347	2.192	2.272	4.014	2.815
<i>In terms of molecules and calculated to 100</i>						
MgO · Al <sub>2</sub> O <sub>3</sub>	8.61	5.19	7.42	19.41	19.25	19.35
MgO · Cr <sub>2</sub> O <sub>3</sub>	14.39	80.72	39.12	39.51	65.50	50.69
FeO · Cr <sub>2</sub> O <sub>3</sub>	67.81	0.94	43.14	30.09	3.80	18.78
FeO · Fe <sub>2</sub> O <sub>3</sub>	9.19	13.17	11.12	10.98	11.44	11.18

columns 3, 2 and 1 respectively. The actual compositions are also given as for 1926. FeO and Fe<sub>2</sub>O<sub>3</sub> were not determined directly. The total Fe was divided between FeO and Fe<sub>2</sub>O<sub>3</sub> so as to make the molecular proportions of MgO + FeO equal to those of Cr<sub>2</sub>O<sub>3</sub> + Al<sub>2</sub>O<sub>3</sub> + Fe<sub>2</sub>O<sub>3</sub>.

It is seen clearly that there is great difference in composition among the three portions belonging to the same chromite mineral and this clearly points to its chemical non-homogeneity.

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### A DISEASE OF THE EUISETUM (EUISETUM DEBILE ROXB.) DUE TO FUSARIUM DIVERSISPORIUM SHERB.

THE infected plants were collected from the canal bank at Harbanspura Rakh near Lahore by Mr. M. L. Seth. There is no reference to

any disease of Equisetum plants in India, though quite a number of diseases of Equisetum and several due to *Fusarium* sp., have been reported from other countries. Amongst the pathogenic *Fusaria* growing on Equisetum may be mentioned *Fusarium equiseti*, *F. avenaceum* and *F. bulbigenum*. *Fusarium equiseti* (Cda.) Sacc. (= *F. falcatum* App. et. Wr.) has been reported by Banerji<sup>1</sup> as causing a leaf-spot disease of *Eichhornia crassipes*.

The infected plants were in a semi-wilted condition. The lower internodes developed whitish linear spots, about a millimetre in length. These spots when examined were found to contain numerous long septate *Fusarium* spores. Hyphae collected below the epidermis. The spores germinated readily in hanging drops. Germ tubes are formed in 3-4 hours' time and are formed either from one or from both ends of the spores. These soon branch and become septate.

The fungus was first isolated by using acid media to keep down the bacteria. Later it was cultivated on potato glucose and Czapek's in

agar. In culture, the hyphæ grew deep into the medium and also produced plenty of aerial mycelium. The aerial mycelium is at first white but later becomes pinkish when conidia are developed in great numbers. The aerial mycelium produces flesh-coloured sporodochia, the spores being 1-5 (mostly 3-5) septate, sickle-shaped, not foot-celled, with papillate base and a gentle tapering, often slightly beaked, apex. The septa are fairly distinct, spore sizes are as follows:—

*Three septa*—

$3.9 \times 23.2$  (3.1 —  $4.8 \times 18.1$  — 30.1)  $\mu$ .

Length: Breadth ratio = 6.1.

*Five septa*—

$4.3 \times 35.8$  (3.6 —  $4.8 \times 32.5$  — 41.1)  $\mu$ .

Length: Breadth ratio = 8.1.

The spores lack the needle-shaped form of eupionnotes and also lack pionnotes. As the culture becomes old, its rose colour changes and it becomes yellowish as chlamydospores are formed. These are double-walled, and do not germinate immediately. They are 7-15  $\mu$  in diameter.

The fungus matches up well with *Fusarium diversisporium* Sherb. and the author is grateful to Dr. G. Watts Padwick, the Imperial Mycologist, for matching the species and for verification of the measurements of the spores.

The pathogenicity of the fungus has been

established by inoculation experiments. Young plants growing in pots when sprayed with spore suspensions got readily infected.

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### FASCIATED AERIAL ROOTS OF BANYAN (*FICUS BENGALENSIS* LIN.)

FASCIATION which results in the formation of a flattened structure due to the fusion of a number of like parts has often been observed in stems and floral axis of plants. An interesting example of fasciated inflorescence of *Acrocarpus fraxinifolius* Wight has been reported by Dr. N. L. Bhor.<sup>1</sup> Various causes have been ascribed for the occurrence of this abnormality but it has rarely, if ever, been reported in the case of roots of plants. For this reason the present instance of fasciation observed in the aerial roots of *Banyan* is of considerable interest.

An examination of the fasciated roots showed that they were formed by a fusion of more than one closely developing lateral roots. In

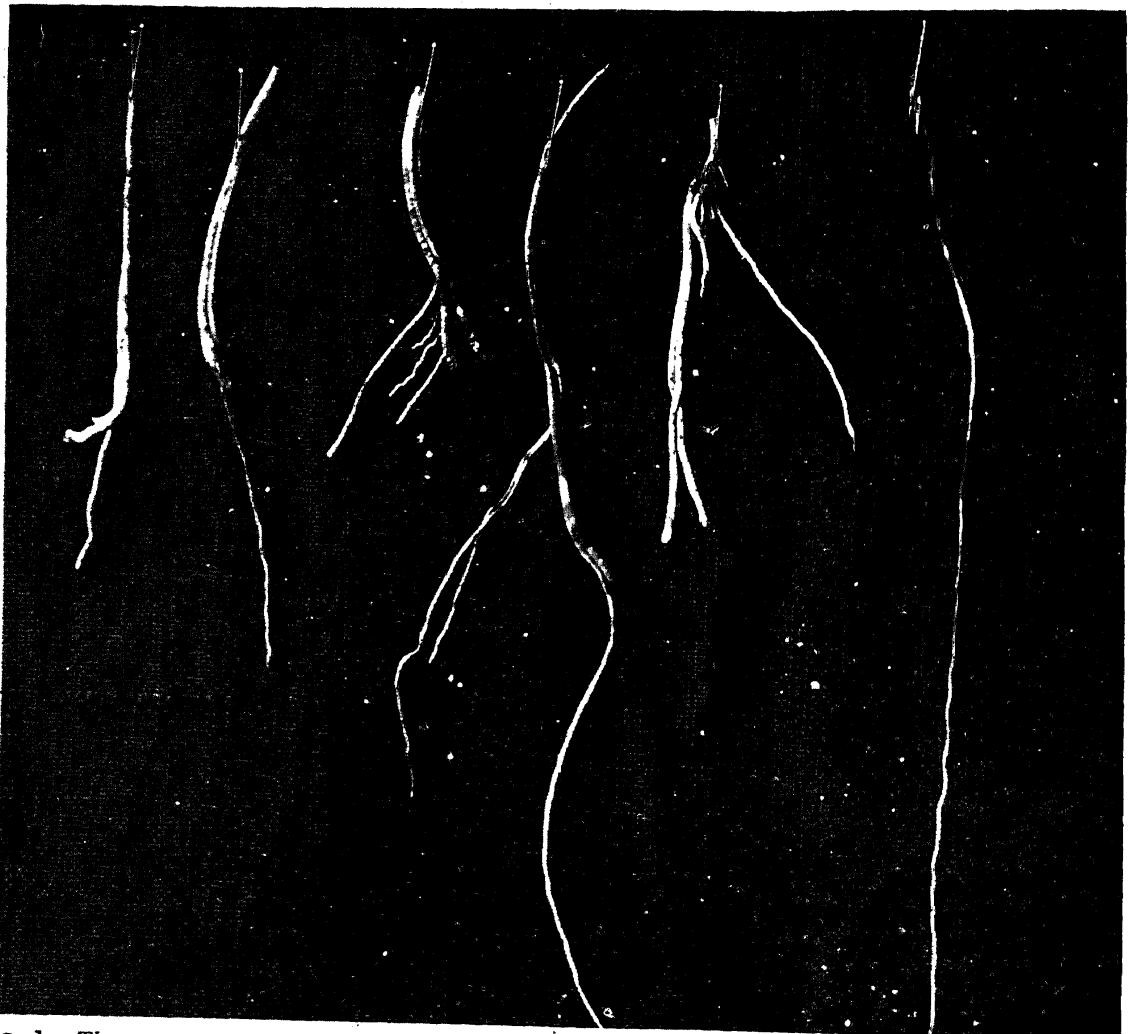


FIG. 1. The root at extreme right shows normal development consisting of a single cylindrical structure. To the left are examples in which two or more roots have become fused and show flattening.