

centric forming 2-3 seriate sheath round the vessels; paranchyma also present in continuous wavy bands (Fig. 1), apotracheal parenchyma diffuse. Xylem rays 1-2 seriate (mostly 2 seriate) (Fig. 2) 17-36 μm wide, 250-880 μm high, 12-14 rays per mm, ray tissue heterogencous, rays heterocellular. Fibres libriform, non-septate, not aligned in radial rows.

One of the most important features of the present fossil wood is the presence of banded parenchyma. Among the modern woods banded parenchyma is found in about 16 families and 40 genera (Chowdhury and Ghosh¹) of dicotyledons. However, in other important anatomical features, such as (1) vessels being mostly solitary and also in radial rows of 2-4 (2) Xylem rays 1-2 (mostly 2) seriate, heterogeneous non-storied (3) Fibres non-septate, the present fossil wood shows affinities with the woods of *Cynometra* L. The fossil wood resembles closely the woods of two extant Indian species *C. inaequilifolia* A. Grey and *C. cauliflora* Linn. in the nature and distribution of vessels and parenchyma.

The present fossil wood clearly shows affinity with the genus *Cynometroxylon* Chowdhury and Ghosh¹ of the family Leguminosae. It shows superficial resemblance with the three already known species of *Cynometroxylon*, viz., *C. indicum* Chowdhury and Ghosh (Prakash⁴, Ramanujam and Rao⁵) *C. dakshinense* Navale³ and *C. schalginweiti* Müller-Stoll and Madel². However, the present fossil wood differs from all the three above-mentioned taxa in its not having terminal parenchyma and homogeneous xylem rays. Due to these distinctive features it is assigned to a new species *C. siwalicus*. This is the first report of the occurrence of *Cynometroxylon* from the Siwaliks.

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A PRELIMINARY STUDY OF THE EFFECT OF THE HERBICIDE 2, 4-D ON THE NITROGEN METABOLISM OF THE WATER FERN *SALVINIA NATANS*, L.

THE effect of the herbicide 2, 4-D on the nitrogen metabolism of the water fern *Salvinia natans* was studied. Plants were grown in four glass troughs under natural conditions. The herbicide was sprayed over two troughs, at 10 g/l while the other two troughs, were kept as controls, and all were exposed to the same environmental conditions. At every 12 hours, 10g each of the aerial and the submerged parts were collected and dried at 80°C. Then they were pulverised and their dry weights determined.

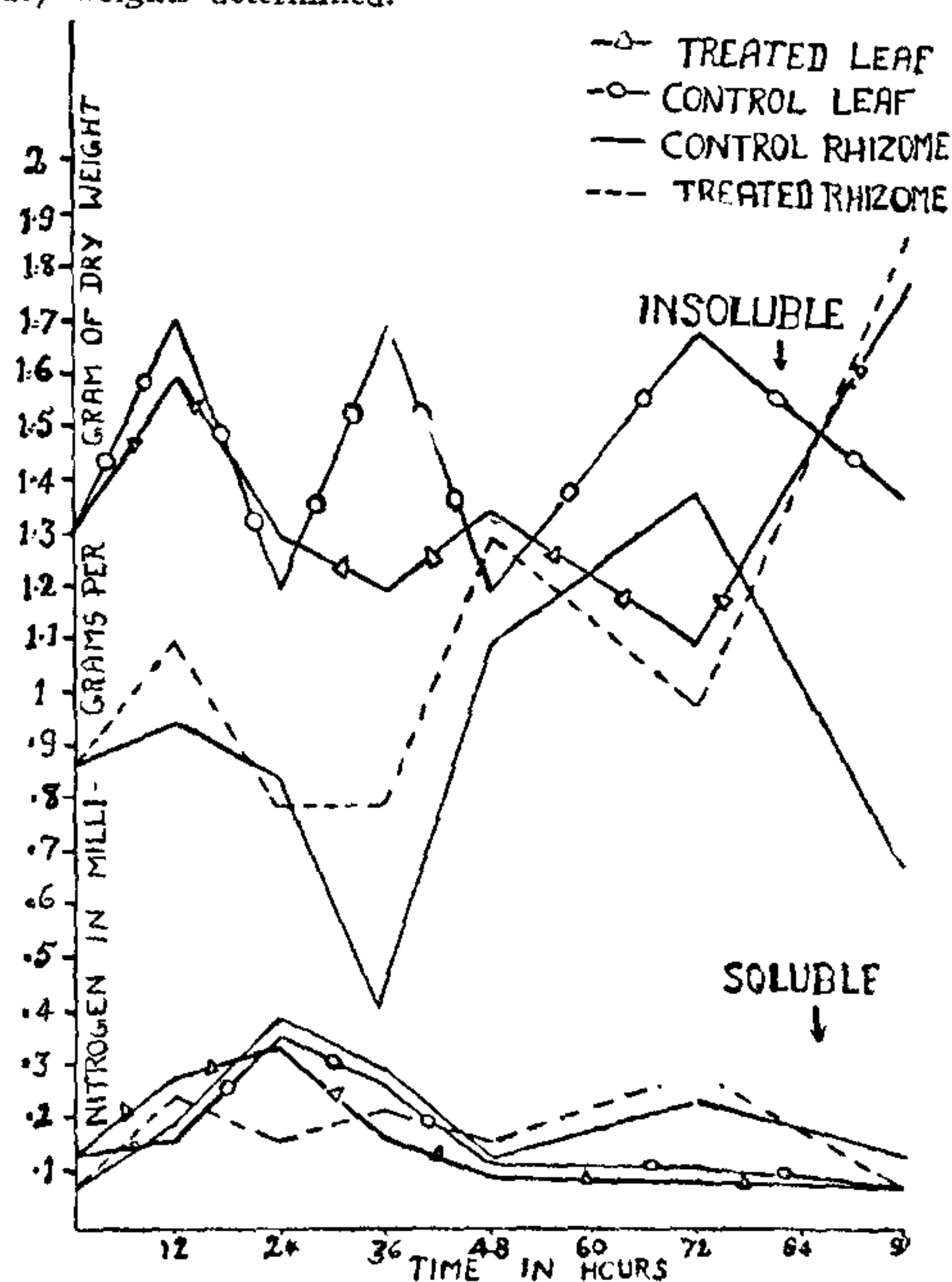


FIG. 1. Effect of 2, 4-D on the nitrogen content in *Salvinia*.

Necrosis of the plant occurred after 72 h as shown by the chlorosis of the leaves, followed by disintegration of rhizomes. Older leaves were the first to be affected as shown by their curling and burnt appearance. After 72 h, there was complete cessation of growth. An increase in the dry weight at 12 h, and then a decrease, followed by a rise, in leaves as well as in rhizomes is shown in Table I. An analysis of the N content of *Salvinia* showed that the total and protein N were to be variable in both control and 2, 4-D treated plants. (Fig. 1).

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TABLE I
Dry matter (percentage) of *Salvinia natans* treated
with 2, 4-D

Duration of treatment (h)	Rhizome		Leaf	
	Control	Treated	Control	Treated
12	5.42	7.61	8.02	8.05
24	4.61	8.33	6.77	9.24
36	4.11	5.46	6.77	7.86
48	5.43	4.83	8.04	7.03
72	4.99	4.52	7.65	7.59
96	7.00	7.48	8.44	10.12

Variation in total and protein N in *Salvinia* may be due to the mobilisation and translocation of N from rhizome to leaves and *vice versa*. This becomes more pronounced in 2,4-D treated plants. Effects of 2,4-D treatment on various nitrogenous fractions have been reported and it was found that the turnover of total and protein N was more variable¹⁻³. Other investigations indicate a lowering of N, break down of proteins and a temporary decrease in dry weight, followed by an increase⁴⁻⁷.

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OBSERVATIONS ON *PITHOMYCES ELLISII*

A cosmopolitan species of the genus *Pithomyces* Berk. & Br., viz. *P. chartarum* (Berk. & Curt.) Ellis causes facial eczema in sheep in New Zealand in addition to inhabiting in a wide range of plant substrates. While studying some *Pithomyces ellisii*¹ like forms, collected from various forest regions of Andhra

Pradesh and Orissa, the authors observed some noteworthy characters.

Pithomyces ellisii Vasant Rao and Chary¹ was collected on dead unidentified stems, twigs of *Lantana camara* Linn. and *Eucalyptus* sp., wood of *Tectona* sp., and bark of *Eugenia jambolana* Lam.; it also, grows as a mycoparasite upon the setae of *Excipularia naisapurensis* Subramanian. This is the first record of mycoparasitism in this species.

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ASSOCIATION OF THE CITRUS NEMATODE WITH GRAPE ROOTS IN A COMMERCIAL ORCHARD

A SURVEY of plant parasitic nematodes associated with grapes, *Vitis vinifera* Linn. undertaken during 1978 in commercial orchards around Bangalore revealed the presence of the citrus nematode, *Tylenchulus semipenetrans* Cobb, 1913 in Mane Estate, Kengeri, Bangalore, Karnataka. Adult females of the citrus nematode with egg masses were found attached to the roots of 'Anab-e-shahi' variety of grapes (Fig. 1).



FIG. 1. The Citrus nematode attached to the grape root.