

## Short Communications

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### CONSTITUENTS OF DELPHINIUM ORIENTALE

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*Delphinium orientate* (Ranunculaceae) grows abundantly in Iran. It is used for various ailments in folklore medicine. Various alkaloids namely delsofine, delcosine, ajacine, delorine and delsonine have been obtained from the seeds,<sup>1,2</sup> but no work has been done on the aerial part of the plant. We have obtained choline and D(+)-mannitol from the aerial part of the plant.

The methanolic extract of the defatted material on concentration gave D(+)-mannitol, m.p. 165–167°C (m.m.p.); acetate, m.p. and m.m.p. 123–125°C. The mother liquor on chromatography through alumina and elution with chloroform-methanol gave choline (mass spectra and superimposable IR spectrum).

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### CURLED-LEAF DISEASE OF PAPAYA TREE

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This note supplements two previous communications, the earlier being entitled 'shredded-leaf disease of papaya tree'.<sup>1</sup> The disease was so designated on account of the prominent symptoms when leaves were reduced to shreds, showing bare-ribs with

vestiges or 'rags' of leafy portions. But it was stated that before the papaya trees showed any abnormality, a lemon tree had suffered from 'curly-leaf' disease and had to be coppiced. It was suspected that the so named 'shredded-leaf disease' was in fact 'curled-leaf' or 'rolled-leaf' disease well known as due to virus infection among plants. In the second article,<sup>2</sup> Fig. 7 was offered to show how even stems curled or coiled corresponding to leaf being curled or 'rolled-up'. The tree of which a leaf was illustrated in Fig. 9 was a male plant. It had two trunks. On the smaller one now after two years leaves began to show typical curling or rolling as expected of typical 'roll-leaf' virus infection. Here we may contrast two kinds of leaf growth. One would be exemplified by the coconut palm with leaves spread-out forming a canopy. The papaya would belong to this class of trees. The other class would be represented by cabbage with leaves rolled up to resemble a ball of foliage. Fig. 1 shows papaya leaves curled up to make 'balls' each from a single leaf. Such a diseased leaf, (Fig. 1) should be compared with a normal and healthy leaf like Fig. 1 of the second article.<sup>2</sup>

Figure 2 shows a branch in Fig. 1 enlarged where a curled-leaf has been rolled up into a ball-like form. Thus there is no doubt left that the shredded-leaf disease is identical with rolled-leaf disease well known to plant pathologists. However, the problem remains unsolved why the symptoms seen in Figs. 1 and 2 here did not appear before and could be noticed only one plant. Of the two symptoms 'shredded-leaf'



Fig. 1.

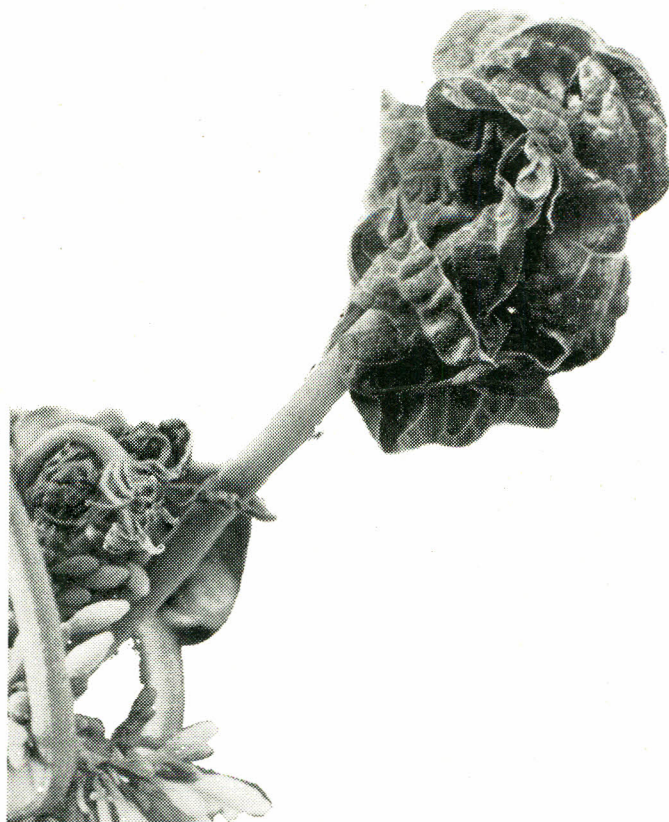


Fig. 2.

is obviously the more severe. Since papaya leaves are large the 'roll-leaf disease' seen in Figs. 1 and 2 offer its most characteristic features so far illustrated.

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### PLANT PARASITIC NEMATODE FAUNA OF SIND

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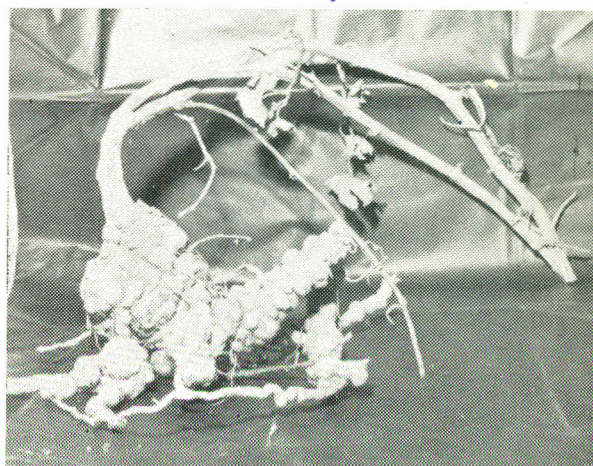
A survey of plant parasitic nematodes of Sind region has been undertaken in order to determine their prevalence, host-range and pathogenicity. Although

Timm<sup>1-6</sup> has made significant contribution in nematode studies from East Pakistan yet there has been practically no organised work in this field from West wing, except a report by Brown<sup>7</sup> of short survey and description of few species by Akhtar<sup>8-10</sup> and Siddiqui,<sup>11,12</sup> During the surveys in the year 1969-71, we recorded nineteen genera of plant parasitic nematodes out of them nine genera are new records from Sind region. Twenty six new hosts (for Pakistan) are also being reported for different genera of nematodes.

#### Materials and Methods

Soil and plant materials were collected in polythene bags from the fields at various depths depending on the host. From annuals and biennials soil samples were taken at a depth of 6-12 in and from the trees, it was taken at a depth of 1-2 ft.

Nematodes from the soil were extracted according to improved Baeremann technique<sup>14</sup> as described earlier. Roots were examined under binocular after thorough washing. Nematodes inside the roots were

Fig. 1. *Luffa aegyptica*.Fig. 2. *Dolichos lablab*

isolated after chopping them. Identification was done after Thorne up to generic level only.

### Result and Discussion

*Meloidogyne*, *Pratylenchus*, *Ditylenchus*, *Tylenchorhynchus*, *Helicotylenchus*, *Hoplolaimus* and *Paratylenchus* were found in sufficient numbers to cause damage to their respective hosts. *Meloidogyne*, of which at least three species are found in this region, is the most prevalent nematode. It has got the widest host range among all the nematodes recorded presently. The damage done to the agricultural crops by nematodes is of alarming magnitude. In some hosts such as *Luffa aegyptica* the galls produced by *Meloidogyne* were of exceptionally enormous size (Fig. 1). In some cases soil fungi were also found associated with the nematodes.<sup>13</sup> In *Dolichos lablab* root galls were produced by the joint action of root-knot nematodes and root-nodule bacteria (Fig. 2).

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