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THE ALFALFA STEM NEMATODE, *DITYLENCHUS DIPSACI*
(KÜHN 1857) FILIPJEV 1936 AS AN IMPORTANT THREAT FOR
CULTIVATION OF ALFALFA IN IRAN⁽¹⁾(²)

by

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Alfalfa (*Medicago sativa* L.) is a very important source of food for livestock which provides the main source of meat production in Iran. Although the need for yield increase has encouraged some farmers to apply scientific methods of crop production including pest control programs, the nematode problems of this crop have not been investigated in Iran. However, nematode damage, especially that of *Ditylenchus dipsaci* (Kühn) Filipjev, to alfalfa and clover has been known for some time in America and Europe (Amos 1919, Goodey 1922, Ware 1925, Goodey 1933, Christie 1959, Southey 1959, Anon. 1961, Binglefors 1961, Thorne 1961, McClohon and Minton 1963, Godeck and Favret 1965, Sherwood *et al.* 1967, Binglefors and Eriksson 1968, Griffin 1968, Tseng *et al.* 1968, Wynne and Busbice 1968).

Damage caused by *D. dipsaci* was first noticed when a population was found to be associated with a severely damaged 10 hectare patch in a 18-hectare alfalfa field in the spring of 1972 following an extraordinary rain winter. The stand had been planted in 1968, and was located in Akbar Abad (one of the villages of Khafr County) which is about 50 Kilometers east of Shiraz.

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Fig. 1 - The alfalfa field heavily infested with the stem nematode, showing weeds dominating the alfalfa plants.

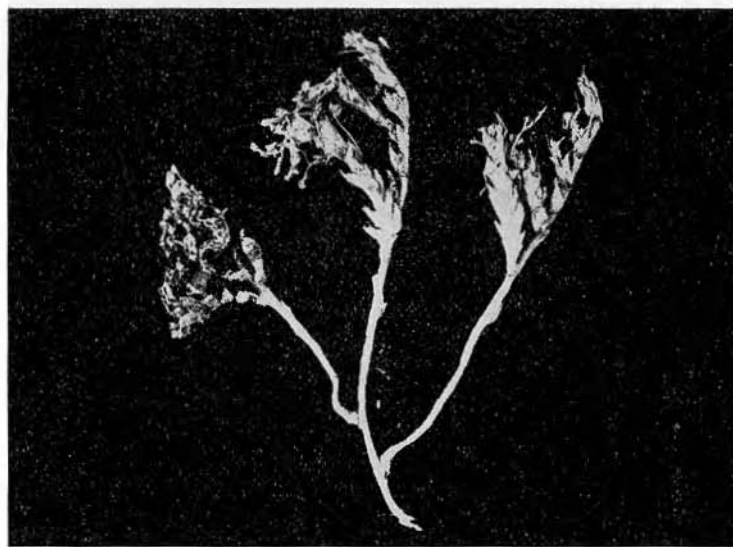


Fig. 2 - Above: The stunted and spike-like foliages, heavily infested with the alfalfa stem nematode, compared with the healthy ones.
Below: The spike-like foliages with a higher magnification.

The disease was noticed first by the farmer concerned when he was cutting his first hay crop in April 1969. Most of the alfalfa plants in the affected areas were stunted; so that no hay could be harvested (Fig. 1). The dying plants in the affected area were severely stunted, and the foliage was brown, in sharp contrast to the green color of the healthy plants on the same field, and the stems were easily broken. However, the root system of the unhealthy plants showed no sign of disease.

The disease occurred in circular to irregular patches, and was prevalent and severe on the lowlands of the field and the end of the basins where more irrigation water and the dried foliage of the plants had been accumulated. No problem was noticed on the rows, where the foliage were not submerged when the field was irrigated.

The buds of the infested plants were short and swollen and the foliage had a shape similar to the spike of wheat (Fig. 2).

Microscopical examination of the foliar parts of the affected plants processed by a combination of Blender and Cobb sieving technique (Goodey 1963) revealed the presence of *D. dipsaci* in a large population, with a maximum of 8,000 nematodes per gram of the infested bud, while the apparently healthy plant yielded no or few number of the nematodes. The soil samples collected from the infested fields also revealed the presence of this nematode.

Although this report is the first report on the occurrence of *D. dipsaci* on alfalfa in Iran, it may be widespread all over the country. However, thorough survey of the alfalfa fields is required for determination of the infested fields to avoid its spread to the healthy alfalfa plantations by application of the quarantine programs.

Studies on the extent of distribution of this nematode, susceptibility of available varieties, and possibility of its chemical control are in progress.

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SUMMARY

The alfalfa stem nematode, *Ditylenchus dipsaci* (Kühn 1857) Filipjev 1936, is reported for the first time from Iran. The damage to a 10-hectar alfalfa farm at the vicinity of Shiraz (Iran) was so severe that no harvest was possible. Although no other infestation has been observed in other areas, it seems likely that infestations may be widespread throughout the country in areas where the plant has been grown for many centuries and a survey is in progress to ascertain the extent of distribution.

RIASSUNTO

Ditylenchus dipsaci (Kühn 1857) Filipjev 1936, una minaccia per le coltivazioni di erba medica in Iran.

Ditylenchus dipsaci (Kühn 1857) Filipjev 1936 è segnalato per la prima volta su Erba medica in Iran. I danni causati da questo nematode in un campo di 10 ha., nelle vicinanze di Shiraz, erano molto gravi tanto che l'intera produzione risultò distrutta.

RÉSUMÉ

Ditylenchus dipsaci (Kühn 1857) Filipjev 1936, une menace pour les cultures de luzerne en Iran.

Ditylenchus dipsaci (Kühn 1857) Filipjev 1936 est signalé pour la première fois en Iran sur luzerne. Le damage causé par ce nématode dans un champ de 10-hectares, aux environs de Shiraz, était à tel point que la production a été détruite tout à fait.

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