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STUDY OF DIVERSITY OF PLANT NEMATODES AROUND VEGETABLE CROP IN JALNA DISTRICT (M.S.) INDIA

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ABSTRACT

The present study is based on the survey of plant parasitic nematodes in different villages of Jalna district. Samples were collected around the roots of Vegetable crops from these villages. The frequency of occurrence and population varied from place to place which is simply indicates the fact that the study area is highly infested with different varieties of nematode genus i.e. *Paracrobeles, Acrobeles, Monhystera*

KEYWORDS

Acrobeles, Monhystera,Paracrobeles.

RESEARCH PAPER

INTRODUCTION

The genus *Monhystera* includes a large number of species which are free-living in marine and freshwaters, and are also soil-inhibiting. According to Crofton (1966), the genus *Paracrobeles* was described by Heyns (1968), with *Paracrobeleslaterellus*Heyns, 1968 as type species, for a cephalobid from South Africa having: pharyngeal metacorpus developed into an elongate median bulb with a large chamber; labial probolae long, bifurcate, sharply pointed, prongs without fringe; and cephalic probolae prominent, sharply pointed without fringe. *P. laterellus* has also been reported from Namibia by Rashid *et al.* (1990).

The genus *Acrobeles* was described by Von Linstow, (1877) a number of very interesting round worms. The family Cephalobidae was established by Filipjev (1934).

Acrobeles is readily recognized by the funnel shaped stoma and the complex, vine – shaped labial attachment. Identification of Acrobeles species is usually based on measurement of female, head shape, three labial probolae. According to the presence of only the inner or labial circle of probolae and cephalic (outer) circle as well the genus is sub divided into the subgenera Acrobeloides embracing the former and *Acrobeles* structure, including the later (Thorne, 1925)

MATERIAL AND METHODS

Sample collection

The present investigation was carried out on the occurrence of important plant parasitic nematodes associated with sugarcane during 2015-16. Nematode sample from 4 localities of Jalna district were collected from around the roots of sugarcane and soil up to depth of 0-15 cm. the samples were mixed to make a composite sample from the composite soil sample 250 gm of soil was taken for further processing.

Parasite collection

Extracting the nematode by Cobb's sieving and decanting methods (1918) followed by Bearmanns funnel technique (Schindler, 1961). Extracted sample was observed under stereoscopic binocular microscope for collection and Syracuse counting disc. Isolated nematodes were killed in hot water and fixed in FAA (Formal acetic acid) solution and mounted on permanent slide in dehydrated glycerin for further anatomical studies. Based on morphological characteristic of adult and juvenile forms the nematodes were identified up to generic level (Mai and Lyon, 1975)

DESCRIPTION

In this investigation eight genera were recorded from three distinct orders such as Rhabditida, Monhysterida

Table No. 1:- List of Nematode parasites collected, observed and identified.

Sr. No	Order	Family	Genus
1	RhabditidaChitwood, (1933)	Cephalobidae , Filipjev, (1934)	1) *Acrobeles*(Von Linstow, 1877) 2)*Paracrobeles* (Heyns, 1968)
2	Monhysterida De Conink and SchuurmamsSkekhoven, (1933)	Monhysteridae, de Man, (1865)	*Monhystera* (Bastian 1865)

1) *Acrobeles* (Von Linstow, 1877) Body long elongated and body length measures 1.61 mm, almost cylindrical, ventrally curved after fixation. Cuticle single, slightly spiral, this more apparent at neck region. Head region set off with the neck, three high labial probolae present, each prongs having 5-7 visible tines at inner margins and 7 at outer margins, and two elongate apical tines which adopt V shape under light microscope. Amphid openings circular.Stoma cephaloboid with well distinct parts. Oesophagus cylindrical; measures are 235 µm from anterior end. Basal bulb ovoid in shaped, with vulvlar apparatus at middle part.

2) *Paracrobeles* (Heyns, 1968)Body small, cylindrical, curved, cuticle annulated, annuli with longitudinal striation. Body length is 1.02 mm. Lateral field, with three incisures. Lip region weakly offset, consisting of six lips arranged in three pairs, one dorsal and two sub-ventral. Pairs of lips separated by primary axils with two acute triangular guarding processes, secondary axils shallow .Cephalic probolae four long and slender tines.

Labial probolae deeply bifurcate with long slender prongs. Six outer labial and four cephalic papilliformsensilla arranged in a cephaloboid manner. Amphid aperture rounded.

3) *Monhystera* (Bastian 1865) Body broader sized, 4.9mm long, slender, ventrally curved upon fixation, tapering at both extremities. Cuticle smooth lip region continuous with adjoining body contour. Lips amalgamated. Inner labialsensillapapilliform; outer labial sensilla small, setose; amphidial aperture circular; stoma with parallel walls, posterior parts funnel shaped, pharynx cylindroids anterior part expanded, muscular, without valve plat. Nerve ring at 43- 55% of pharyngeal length.Cardia rounded. Reproductive system monodelphic. Oocytes arranged in several rows in germinal zone but in single row beyond that. Vagina cuticularized, anteriorly directed, about half of corresponding body diameter. An elongate post – vulval glandular body while two small irregular bodies present close to ventral vaginal wall. Tail long, uniformly tapering, ventrally curved. It is 325 µm long from anule diameter.

RESULT AND DISCUSSION

The present study exposed diversity of ectoparasitic nematode in association with Vegetable crops. They include important nematodes genera such as *Acrobeles*, *Monhystera*, *Paracrobeles.*

Phylum Nematoda represents a diverse array of taxa present in subterranean Environment In nematodes, the ability to move fromone place to another is rather restricted. Stauffer (1925).

The genus *Paracrobeles* was described by (Heyns 1968). The Mojave Desert and especially the Kelso Dunes seem to be an area with a high diversity of species of the family Cephalobidae Filipjev, 1934.

The genus *Acrobelus*is reported by, Von Linstow in 1877. After that, many scientists worked on this genus worldwide by R. Pena Santiago 2004. In addition, Shokoohi et.al, 2007. Later on it is also redescribed by NegianAmirzadhi et.al, 2013

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Paracrobeles MonhysteraAcrobeles

CONCLUSION

From the above result it is conclude that various villages of Jalna District have heavy infection of nematodes due to that lack of vigour, stunting and reduced yield so here is need to aware the farmers about the plant parasitic nematodes associated with Vegetable.

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