Distribution Of Predatory Nematodes On The Host Plant Castor And Pumkin In Arid Zone

Manju Shekhawat[1] and Naresh Vyas[2]
Department of Zoology, Jai Narain Vyas University, Jodhpur – 342001

Abstract : One of the important aspects of that was undertaken in the present study was the prevalence of the nematodes with respect to season. In case of pumkin collection was made from July to Dec. 2017 and in castor from Jan to June 2018. The distribution of nematodes and their peak in June-July and declined gradually from July to August and December to March.

Key words : **Nematodes, fluctuation – season, pumkin, castor.**

Introduction

Nematodes are among the most abundant and widespread of all organisms inhabiting the soil, forming one of the important group of living beings. These slender, active, vermiform creatures are found not only in soil and roots but also in fresh and salt water. They utilize directly or indirectly, the living materials of plants as sources of nutrition and often as habitat and sites for reproduction. These small worms are equipped with a protrusible hollow stylet which is thrust into plant tissues for obtaining nutrition after the dissolution of the cell contents.

Bramez et al. (2004) have studied the population dynamics of nematodes in winter wheat on the area of Knezebo. Knight and wimshurts (2005) carried out a study on the impact of climate change on geographical spread of agricultureal pests particularly nematodes.

Material and Methods

Soil samples were drawn from rhizosphere of crops, at a distance of at least 8km. Several cores of sample were taken from a depth of 10-20cm and packed in polythene bags. A composite soil sample of 100g was processed with Cobb's Sieving (1918) and decanting technique followed by modified Baermann's funnel method (Townshend, 1962).

The distribution of the nematodes and their density changes cold be followed in relation to season and area. To assess the prevalence, the soil samples were taken monthly from field for a period of one year.

Result and Discussion

Nematode population in soil reached its peak in June-July and declined gradually from July to August. This pattern in the population fluctuation suggests that the ecological conditions, particularly the temperature is unfavourable for the multiplication and development of the nematodes in December and February.

May, June and July were most favourable and March, April provide less fourable conditions. Nematodes population is high in July and very low in January and February as per the findings of Fotedar and Mahajan (1972).

Table 1. Seasonal disribution of pumking nematode population densty (No./100g soil).

Collection sites	Jul	Aug	Sep	Oct	Nov	Dec
Daijar	243	71	115	183	157	71
Pal	241	63	120	--	--	97
Banar	244	65	121	172	143	81
Bijolai	246	66	122	177	141	99

Table 2. Seasonal disribution of castor nematode population densty (No./100g soil).

Collection sites	Jan	Feb	Mar	Apr	May	Jun
Daijar	40	15	30	60	130	175
Pal	42	20	29	67	131	177
Banar	41	16	28	62	129	183
Bijolai	46	22	31	61	125	184

Acknowledgments

We specially thank Dr. Naresh Vyas Professor, Department of Zoology, Jai Narain Vyas University Jodhpur, for their valuable suggestions and guidance during the whole study.

References

1. Bramez, M., Ivezic, M., Raspudic, E. and Majic, I. (2004). Population of nematodes in winter wheat, Dinamika Populacije nematode u ozimoj psenici. Agriculture Scientific and Professional, Rev. 10, 5-9.

2. Cobb, N.A. (1918). Estimating the nematode population of soil. Agriculture Technology Circ., US Department Agriculture, 1, 48.

3. Fotedar, D.N. and Mahajan, R. (1972). A new species of the genus Basiria Siddiqi, 1954 from around the roots of Brassica oleracea in Kashmir, Indian Science Cong., III, 453.

4. Knight, B.E.A. and Wimshurst, A.A. Impact of climate change on the geographical spread of agricultural pests, diseases and weeds Humboldt University, Berlin, Germany 2005, 9-11.

5. Townshend, J.L. (1962). An examination of the efficiency of the Cobb Decanting and Sieving Method Nematology, 8,4, 293-300.