Survey And Seasonal Incidence of *Meloidogyne Incognita* Race II ASSOCIATED With Brinjal Crops in Solapur Region

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Abstract

Brinjal egg plant (*Solanum melongena* L.) has high nutritive value so it cultivated all over the world. Brinjal production is affected by *Meloidogyne incognita* Race II which are responsible large amount of yield losses. Survey of seasonal incidence of *M. incognita* race II associated with brinjal plants during monsoon season June 2014 to August 2014.Season wise variation reported in Solapur region.The population density in monsoon season in brinjal plants, in 200 g soil sample average *M. incognit*a race II nematode density were 370, maximum in Sept. month 450 and minimum in June month 280. Average number galls in 5 g roots were 36.75, maximum in Sept. month 44 and minimum in June month 28. Average number of egg mass in 5 g roots were 39.75, maximum in Sept. month 48 and minimum in June 130. Root knot index (RKI) maximum 4 and minimum 3 gall indexes were recorded.

Key Words: *Meloidogyne incognita* Race II., Brinjal (*Solanum melongena* L.) and monsoon Season.

Introduction

Brinjal (*Solanumme longena* L.) is one of the most widely cultivated vegetable crops in Solapur region. It is an annual vegetable crop, cultivated in throughout the country. It is estimated to cover about 8.14% vegetable area with a contribution of 9% to total vegetable production in India (Sikora and Fernandez, 2005). Brinjal plants have good for diabetic patients and those suffering from liver complaints (Shukla and Naik, 1993).It is a grown commercially as an annual crop. It is a good source of vitamins (A, B and C) carbohydrates, sterols and proteins. It contains

a higher content of anthocyanin, phenols, free reducing sugars, glycoalkaloids andproteins (Bajaj *et al.,* 1979).

In Solapur area brinjal it has taken in ta larger areas . Production is affected due to various diseases including various pest and pathogens such fungal, viral, bacterial and nematode diseases (Sasser*et al.,* 1983). Among all the these root knot nematode *Meloidogyne* are the most harmful destructive nematodes in agriculture crops (Javed*et al.,* 2006). Plant parasitic root-knot nematodes (*Meloidogyne* spp.) occurred all over the worldwide and are causes annual yield losses to large part of area attributed to nematodes (Dropkin, 1980., Trudgill and Blok, 2001).

27.3 to 32.0% yield loss in brinjalplant due to plant parasitic root knot nematode Meloidogyne *incognita* (Bhatti and Jain, 1977; Darekar and Mahase, 1988) Root knot nematodes are more challenging to control because they live in the soil and cannot be easily seen by farmers (Mai, 1977). They are only noticed when the population is widespread and yield is very low.

A survey is necessary to assess plant parasitic nematodes *Meloidogyne incognita* Race II associated with Brinjal crops. Many environmental factors such as soil type, soil temperature, soil moisture, weed hosts and intercropping are influence nematode distribution. The survey on root-knot nematode will provide information on incidence, severity and distribution.

Materials and Methods

Field survey

Field survey was conducted for identifications *Meloidogyne incognita* race II. Field visit to 5 selected area in south Solapur region. 20 brinjal sample plant soil and roots samples were collected randomly to study the damage caused by *Meloidogyne incognita* race II.

Collection of nematodes from infected soil and root sample of brinjal

Soil sample from infected fields of brinjal, of 1 kg soil and few roots were collected. Among these 200 cc soils was washed thoroughly and processed using Cobb's sieving and Decanting method (Cobbs, 1918). Followed by modified Baermann's funnel methods. It was used to study incidence, prevalence of *M. incognita r*ace II.

Identification of the *Meloidogyne* species

Identification of the *Meloidogyne incognita* race II by perineal pattern method (Eisen back *et al.*,1981).

Gall and Egg index of brinjal

Numbers of gall index (GI) and egg masses were accessed on following scale: 0=0, 1=1-2, 2=3-10, 3=11-30, 4= 31-100 and 5=greater than 100 galls or egg masses per root of brinjal plants (Taylor and Sasser, 1978.,Eisenback, 2010)

Results And Discussions

Prevalence and seasonal incidence of *M. incognita* race II associated with brinjal plants during monsoon season (June 2014– August 2014).

Table 1.1 Prevalence and seasonal incidence

Month	No. of sample	No. of Infected	% of incidence	RKN POP 200 gm	No. of gall	No. of egg mass/ 5 gm root	RKI
June	20	15	75	280	28	30	3
July	20	15	75	330	34	36	4
August	20	17	85	420	41	45	4
September	20	18	90	450	44	48	4
Total	80	65	81.25	370	36.75	39.75	4

The population density in monsoon season in brinjal plants, in 200 g soil sample average *M. incognit*a race II nematode density were 370, maximum in Sept. month 450 and minimum in June month 280. Average number galls in 5 g roots were 36.75, maximum in Sept. month 44 and minimum in June month 28. Average number of egg mass in 5 g roots were 39.75, maximum in Sept. month 48 and minimum in June 130. Root knot index (RKI) maximum 4 and minimum 3 gall indexes were recorded.

Discussion

These results were compared with different parts of the world Sasser 1977., Taylor and Sasser, (1978)Sasser 1979 and Similar type of experimental studies were conducted by survey vegetable crops infected in Aligarh area(Khan *et al.,* 1984).

Conclusion

The present investigation were shown the prevalence of *Meloidogyne incognita* Race II most of the area surveyed and their recovery from brinjal field suggest that nematode might be one region to another region though soil, infected plants, irrigation water.

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