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SURVEY AND IDENTIFICATION OF ROOT-KNOT NEMATODES *MELOIDOGYNE INCOGNITA* RACE II ASSOCIATED WITH TOMATO CROPS IN SOLAPUR REGION, (M.S.), INDIA

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ABSTRACT: *Tomato (Solanum lycopersicum L.) has high nutritive value so it cultivated all over the world. Tomato production is affected by plant parasitic root knot nematode Meloidogyne incognita Race II which are responsible large amount of yield losses. A survey was conducted over period of year 2017- 2018 to estimate the occurrence of root knot nematode disease on tomato crops in five selected areas in around Solapur region. Survey reports that roots of tomato crops heavily infested with Meloidogyne incognita Race II. Region wise variation in the incidence of disease were found. Highest frequency 90% Wadala area, 70% Nannaj, 60% Ranmasale and Mandrup and 50% Dudhani. Intensity gall index and EMI index 5/5 in Wadala, 4/4 in Mandrup, Dudhani, Ranmasale and 3/3 in Nannaj.*

Keywords : Frequency., *Meloidogyne incognita Race II.*, *Tomato (Solanum lycopersicum L.)*.

I INTRODUCTION

Tomato (*Solanum lycopersicum L.*) has high nutritive value crops so it was cultivated all over the world. It was rich source of vitamins A, B and C and minerals potassium, iron, and phosphorus. In Solapur region it has cultivated larger areas. Production is affected due to various diseases including fungal, viral, bacterial and nematode diseases [1]. Root knot nematodes are more challenging to control because they live in the soil and cannot be easily seen by farmers [2]. They are only noticed when the population is widespread and yield is very low. Root knot nematodes are one of the major pathogens of tomatoes worldwide and limit fruit production [3]. They reduce the quantity and quality of market value. Tomato is most favourable host for root- knot nematodes infection [4]. Root knot nematode interacts with fusarium so more damage the crops [5].

II MATERIALS AND METHODS

Survey

For the experimental a field survey was conducted. Extensive field visit to five selected area in and around Solapur region. 500 tomato plants soils and roots are samples were collected

randomly access the damage caused by *Meloidogyne incognita* Race II. During the sample collection root structure. Samples were kept in polythene bags sealed to avoid dehydration. and properly labelled were brought to the laboratory to counting the Numbers of galls.

Collection of nematode from infected soil sample

Soil sample from infected fields of tomato, of 1 kg soil collected out of 200 cc soils was washed thoroughly and processed using Cobb's sieving and Decanting method [6]. Followed by modified Baermann's funnel methods. It was used to study incidence, prevalence of *M. incognita* race II.

Identification of the species

Identification of the *Meloidogyne* species by perineal pattern method [7].

Gall index and Egg index

Numbers of gall index (GI) and egg masses were determined 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 system [8-9].

III RESULTS AND DISCUSSIONS

GI = Gall index

EMI = Egg mass index on Taylor and Sesser's scale

Table1: Frequency distributions of *Meloidogyne incognita* Race II root-knot nematodes in different localities in and around Solapur.

Localities	Total No. Of filed surveyed	No. of filed with infection	Frequency (%)	GI/EMI (Average)
Wadala	10	9	90	5/5
Mandrup	10	6	60	4/4
Dudhani	10	5	50	4/4
Ranmasale	10	6	60	4/4
Nannaj	10	7	70	3/3

Incidence of root- knot on tomato crops

The survey conducted to study the incidence of *Meloidogyne incognita* Race II disease on tomato in 5 localities in and around Solapur region. Table no.1 showed that 5 areas were infected with *M. incognita* Race II. Overall incidence was 100%. Region wise variation in the incidence of disease were found. Highest frequency 90% Wadala area, 70% Nannaj, 60% Ranmasale and Mandrup and 50% Dudhani. Intensity gall index and EMI index 5/5 in Wadala,4/4 in Mandrup, Dudhani, Ranmaslae 3/3 in Nannaj. These results were correlated with different parts of the world [1]. Similar type of experimental studies were conducted by Khan [10], survey tomato vegetable crops infected in Aligarh area.

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