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PLANT PARASITIC NEMATODES ASSOCIATED WITH CHERRY (*PRUNUS AVIUS* L.) IN BALOCHISTAN, PAKISTAN

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ABSTRACT

A survey was conducted to investigate plant parasitic nematodes associated with Cherry (*Prunus avium* L.) in Balochistan. A total of nine nematode genera were recorded from six localities namely Kalat, Mangochar, Mastung, Mugalzai, Quetta and Surab. The nematodes recorded in high frequency were *Xiphinema rivesi* and *Helicoltylenchus cavenessi*. The control measures using chemicals alongwith organic amendments are suggested.

Keywords: Cherry, Nematodes, Balochistan

INTRODUCTION

Balochistan is the largest province of Pakistan with an area of 342,505 square kilometers. It is mainly composed of desert and rugged hills and rocky mountains. The province also has fertile valley with orchards and prosperous farms of fruits such as apples, peaches, pomegranate, cherry, grapes and apricots in abundance. It produces 90 percent of cherry, grapes and almond. The cultivation of sweet cherries (*Prunus avium* L.) is taken up on commercial scale (Tareen and Tareen, 2006). In Balochistan, cherry is grown on about 897 hectares of land on commercial basis with an annual production of about 1,507 tons (Anonymous, 2003). Like other pathogens, nematodes also play an important role in decreasing its yield (Melakeberhan *et al.*, 1994). In the present paper plant-parasitic nematodes associated with cherry in Balochistan are namely Kalat, Mangohar, mastung, Manghalzai, Quetta and Surab reported.

MATERIALS AND METHODS

A total of 60 root and soil samples were taken from six cherry growing areas of Balochistan. Nematodes were extracted from soil using Cobb's sieving and decanting technique, and from roots, using Stemerding's maceration filtration technique. Direct observation of roots under a stereo-microscope was also used for detecting galls and any other visible symptoms of nematode injury. Nematodes populations were counted in a 10 ml suspension in a counting dish and a mean of 4 counts was taken in each case.

RESULTS AND DISCUSSION

Nine different plant parasitic genera in varying population were found associated with cherry rhizosphere in 6 cherry-growing localities of Balochistan Province (Table 1). *Xiphinema rivesi* and *Helicotylenchus cavenessi* were recorded from all the six localities usually in high number. Similarly, *Aphelenchus avenae* was recorded in five localities surveyed. The nematodes recorded from a single locality were *Hirschmanniella oryzae* and *Tylenchulus semipenetrans*.

Results, of this survey indicated that cherry in Balochistan Province is severely affected by a number of endoparasitic and ectoparasitic nematode genera. Some of these forms, such as *Meloidogyne, Pratylenchus* and *Xiphinema* are known as actual potential threats to a number of crops in Balochistan (Qasim *et al.*, 1988; Khan *et al.*, 2005; Khan and Shaukat, 2010). At Mugalzai trees with etiolated leaves and poor growth were found to harbor high frequency of nematodes. Few root systems showed necrosis of the tissue. *Aphelenchoides* sp. was recorded in two localities and in low populations.

The root-knot nematode (*Meloidogyne* spp.) has already shown to cause immense destruction to roots of fruit crops (Khan *et al.*, 2004; Khan *et al.*, 2010; Samad *et al.*, 2012). Nematodes damage the root system especially feeder roots which ultimately affect plant growth by reducing absorption of water and nutrients from the soil.

Table .1. Distribution and population of different plant nematodes in the rhizosphere soil and roots of cherry in six localities of Balochistan.

		Localities and Nematode population in 200 g of soil					
	Nematodes	**Kalat**	**Mangochar**	**Mastung**	**Mugalzai**	**Quetta**	**Surab**
1	*Aphelenchus avenae*	++	+	+	+	+	–
2	*Aphelenchoides* sp.	–	–	–	+	+	–
3	*Helicotylenchus cavenessi*	+++	++++	+	++++	++	++
4	*Hirschmanniella oryzae*	+	–	–	–	–	–
5	*Meloidogyne incognita* larvae	+	+	–	+	–	+
6	*Pratylenchus* sp.	++	++	+	+++	–	–
7	*Tylenchorhynchus annulatus*	–	–	+	+	–	++
8	*Tylenchus semipenetrans*	–	–	–	–	+	–
9	*Xiphinema rivesi*	++++	+++	+++	++++	+	+

– = Absent; + = Low population; ++ = 50; +++ = Moderate 51–100; ++++ = High > 100.

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