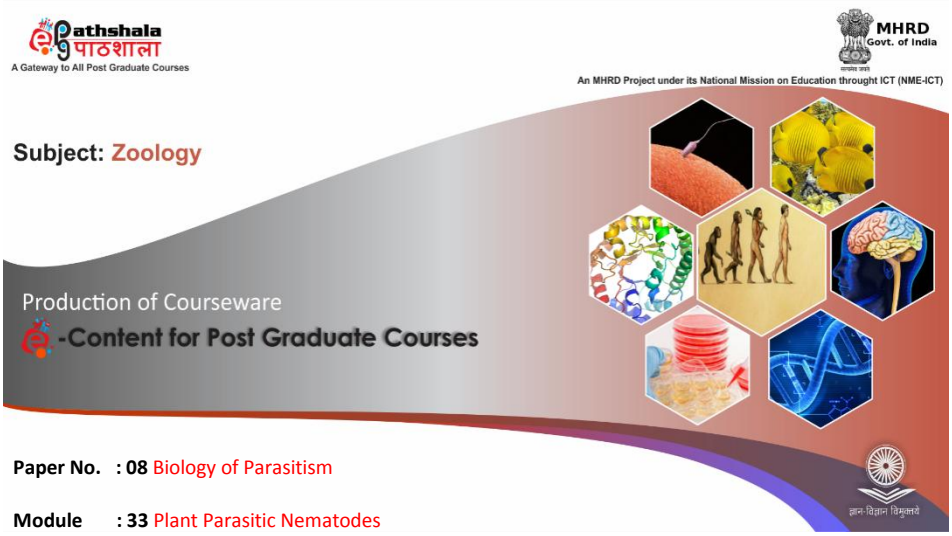

Paper No. : **08** Biology of Parasitism

Module : **33** Plant Parasitic Nematodes

athshala पाठशाला

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Description of Module	
Subject Name	ZOOLOGY
Paper Name	Biology of Parasitism
Module Name/Title	Morphology, biology, life cycle and infection of crop plants by parasitic nematodes
Module ID	33; Plant Parasitic Nematodes
Keywords	PPN, Triplonchida, Dorylaimida, Tylenchida, root parasitic nematodes, ecto-endoparasites

Contents

1. Learning Outcomes

After completing this module, you will be able to:

- understand the economic and ecological importance of plant parasitic nematodes.
- learn the phylogeny of the plant parasitic nematodes.
- understand their biodiversity.
- identify and classify them based on their morphological features and mode of parasitism.
- distinguish them based on their trophic niches.

2. Introduction

Plant parasitic nematodes (PPN) nematodes are usually small, soil-borne pathogens and the symptoms they cause are often nonspecific. They are extremely diverse and abundant in all types of soil, and plants regularly encounter them during their lifetime (Sohlenius, 1980). There are more than 4100 described species of PPN (Decraemer & Hunt, 2006). With only a few exceptions, PPN are root feeders. Their presence is not only the key driving force of plant succession in natural environments (De Deyn *et al*., 2003), but they also collectively represent a significant constraint to the global food security with annual crop damages estimated to be more than $US80 billion per year (Nicol *et al*., 2011).

Nematode infection affects the plant at different levels. Infested fields show a reduced number of plants, and infected plants have a lower biomass due to a disturbed physiology (Figure1). Crop damage is not only limited to the direct nematode-plant interaction itself, but very often nematode infected plants are more susceptible to fungal or bacterial infection (Abawi & Chen, 1998). Certain nematode species can serve as vectors for a number of important plant viruses (Brown *et al*., 1995), or may enhance crop losses associated with insect as well as weed pests (Alston et al., 1991).

Figure 1: A healthy sugar beet versus a beet infected with the cyst nematode *Heteroderas chachtii.*