

Prevalence of root-knot nematode (*Meloidogyne* spp.) on sunflower in Malnad region of Karnataka

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Sunflower (*Helianthus annuus* L.) is one of the most important edible oilseed crop grown in the world after soybean and groundnut. It is one of the fastest growing oilseed crops in India. It is an important source of edible and nutritious oil. This crop has gained importance due to its short duration of maturity, containing excellent quality oil, wide adaptability in different agro-climatic regions, different kinds of cropping patterns and drought tolerance. It is grown as inter crop with groundnut, pigeon pea, castor, soybean and urd bean. Since it is a photo-insensitive crop and grown throughout the year. Sunflower is cultivated on area about 0.72 million hectares with a production 0.50 million tons and with 692 kg/ha (Anonymous, 2012).

Sunflower plants are being infected by many phytoparasitic nematodes and pathogenic fungi (Sharma, 1990; Ahmed *et al.*, 1994). Root-knot nematodes (*Meloidogyne* spp.), common on sunflower, cause severe damage, reduce both seed yield and seed oil content. According to an estimate, root-knot nematode (*M. incognita*) caused 16.44% yield loss in infected sunflower plants followed by yellowing, stunting and killing of plants in the field (Rehman *et al.*, 2006). Diseased plants were easily pulled from the soil due to almost complete destruction of

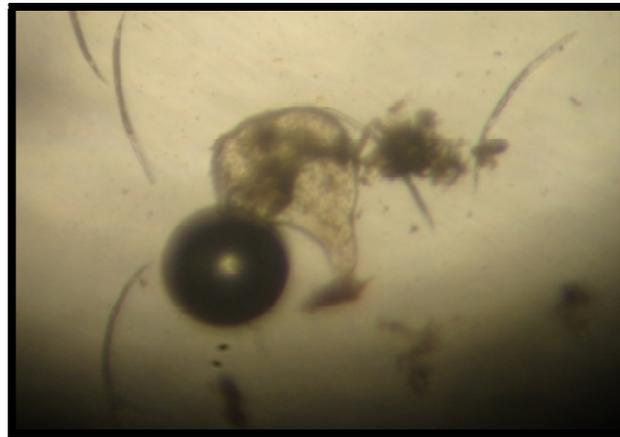
the root system. Numerous galls were found on affected roots as compared with healthy plants.

Amaranatha & Krishnappa (1990) observed the plant parasitic nematodes: *Rotylenchulus reniformis*, *Meloidogyne incognita*, *Aphelenchus avenae*, *Helicotylenchus multicinctus*, *Tylenchorhynchus dubius*, *Aphelenchoides* sp., *Hoplolaimus*, *Pratylenchus*, *Tylenchus* and *Xiphinema* in small numbers and *Rotylenchulus reniformis* most predominant nematode associated with sunflower in Karnataka. However, sunflower has occupied considerable area in recent years in Malnad district, Karnataka.

Root-knot disease caused by *Meloidogyne* spp., on sunflower in severe form in Doddagatta village of Kadur taluk, Chickamagalur district and RKI up to 4 was found in many of the plants. It may be due to the adaptive nature of *Meloidogyne* spp., to different climatic conditions which has resulted in severe infection of sunflower plants. Soil analysis of sunflower field of the area revealed that the population of nematodes is very high (4 juveniles/g of soil). Amaranatha & Krishnappa (1990) reported *Meloidogyne* and other species of nematodes from Karnataka state.



Root-knot galls on roots of sunflower



Females and juveniles isolated from root galls

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