Diseases of *Gerbera* and its management

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Abstract

Gerbera is commercially very important floriculture crop. There are multiple uses of gerbera hence this flower is in high demand at local and international market. Gerbera production is affected by various factors. One of the major devastating factors for *Gerbera* production is different diseases occurring on *Gerbera* . There is great need to manage these diseases effectively to increase production of Gerbera all over the world. Effective management strategies ultimately help to reduce major losses in gerbera production.

Keywords: *Gerbera*, Diseases on *Gerbera*, Management of diseases.

INTRODUCTION

Gerbera is a genus of the family of Sunflowers with approximately 30 species and thousands of cultivar (Yeasmin and Shamsi, 2013). The name gerbera was given in the honour of the German botanist and naturalist Traugott Gerber (1743) (Yeasmin and Shamsi, 2013). The meaning of *Gerbera* is innocence and purity, this gerbera is also known by variety of names such as – African Daisy, Transvaal daisy and Barberton (Yeasmin and Shamsi, 2013). Gerbera was first scientifically described as a South African species by J. D. Hooker in Curtis's Botanical Magazine in 1889 (Yeasmin and Shamsi, 2013). Gerbera is very popular and commercially very important (Yeasmin and Shamsi, 2013). *Gerbera* is one of the most commonly used cut flowers among the world (after rose, carnation, chrysanthemum, and tulip) (Yeasmin and Shamsi, 2013). Long lasting, simple attractive structure and cheerful appearance make it suitable to combine with all other flowers (Yeasmin and Shamsi, 2013). *Gerbera* is used as decorative garden plant, as cut flowers and also in floral arrangements in festivals, party and wedding ceremony (Yeasmin and Shamsi, 2013). Now days, gerbera is cultivated as a garden plant throughout the India (Yeasmin and Shamsi, 2013).

Diseases on Gerbera

Gerbera plant is attacked by insects, pests, fungi, nematodes, bacteria, viral and phytoplasma pathogens (Yeasmin & Shamsi, 2013; Meena et al., 2015; Gautam et al., 2020). Infections with these pathogens cause heavy losses in gerbera production (Meena et al., 2015).

Fungal diseases on Gerbera

Fusarium crown rot (*Fusarium solani*) (Suneeta et al., 2017), Fusarium root rot (*Fusarium oxysporum*) (Suneeta et al., 2017), Phytopthora crown and foot rot (*Phytophthora cryptogea*) (Suneeta et a.,l 2017), root rot (*Pythium irregulare, Rhizoctonia solani*) (Suneeta et al., 2017), Pythium root rot (Pythium spp.) (Suneeta et al., 2017), Rhizoctonia root (*Phytophthora cryptogea*), crown rot (*Phytophthora drechsleri*) (Suneeta et al., 2017), Southern blight (*Sclerotium rolfsii)* (Suneeta et al., 2017), Collar rot (*Sclerotium rolfsii)* (Suneeta et al., 2017) and leaf spot (Alternaria alternate) (Waghmare, 2012). Crown and root rot (by *Phytophthora cryptogea, P. drechsleri*); Sclerotium rot (by *Sclerotium rolfsii*); Blight or Gray mould (*Botrytis cinerea*); Powdery mildews (by *Erysiphe cichoracearum, Oidium crysiphoides);* leaf spots (by Alternaria alternate) (Farhood and Hadian, 2012), (by *Corynespora cassiicola*) (Shi et al., 2012) and by (*Phyllosticta gerberae, Alternaria spp.).* The downy mildews, yellow discoloration on leaf, later turning light to dark brown on *Gerberas* are caused by *Bremia luctucae* (Wolcan et al., 2010), and White rust (white erumpent sori) is caused by *Albugo tragopogonis* (Vazquez et al., 1997).

Bacterial diseases on *Gerbera*

Bacterial leaf spot (*Pseudomonas cichorii*) is major bacterial disease on gerbera. Bacterial leaf spot disease on gerbera caused by *Pseudomonas cichorii* is also seen. The symptoms of this disease iclude: small to large spots, circular at first and then became irregular and dark brown to black spots (Ferreira, 1993).

Nematode diseases on *Gerbera*

The major pests (whitefly, aphid, leaf miner, thrips, mites), diseases (powdery mildew, collar rot, root rot, stem rot, leaf spot), nematodes (root-knot, spiral), and their symptoms, biology, spread, and management are known to create problems in gerbera (Reddy, 2016). Different types of plant parasitic nematodes are found associated with gerbera elsewhere in the world (Lamberti et al., 1987), root knot nematodes belonging to Meloidogyne spp. are predominant in India (Nagesh and Parvath Reddy, 2001). In India, yield loss in gerbera due to Meloidogyne incognita was reported to be 31.1% (Nagesh and Parvatha Reddy, 2000). Different types of nematodes such as Meloidogyne incognita, *Helicotylenchus multicinctus, Pratylenchus coffeae, Tylenchorhynchus spp.* and *Rotylenchulus reniformis*.

Management of Diseases

Application of integrated management system is more effective to control diseases on gerbera (Meena et al., 2015) Leaf spot managed by Carbendazim and other fungicides (Waghmare, 2012). It has been observed that Vermicompost incorporation at 20%, with or without chemical fertilizer, reduced the incidence of diseased plants, and the disease growth rate. Compared to all other treatments, the plant length, chlorophyll content, and number, length and diameter of inflorescences were also significantly higher with vermicompost 20% treatment, with or without chemical fertilizer (Rodriguez 2000). Soil solarization resulted in reduced root rot (root disease index 28.6%) in comparison to the untreated control (52.0%) 8 months after planting. Plants in the fumigated plots had 15.8% less disease than those in solarized plots (Kaewruang, 1989).

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