

SHORT COMMUNICATION

# First report of a Leaf Spot disease of Golden Dewdrop (*Duranta erecta* L.) caused by *Alternaria* species in Western Ghat of Maharashtra

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## SHORT COMMUNICATION

# First report of a Leaf Spot disease of Golden Dewdrop (*Duranta erecta* L.) caused by *Alternaria* species in Western Ghat of Maharashtra

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*Duranta erecta* L. (synonymous to *D. repens*) is widely cultivated as an ornamental hedge plant in throughout the world. Over the past 2 years (2019 to 2021), in Western Ghat region of Maharashtra it has been observed that *Duranta erecta* L. highly attacked by *Alternaria* spp. During the monsoon season dark necrotic leaf spot have been observed on *Duranta erecta* L. plant in Public Park, Private garden and College campus of Western Ghat region of Maharashtra, India. Nearby 10-20% of leaf biomass loss were recorded in *Duranta erecta* L. due to *Alternaria* spp. attack. Hence this is the first report of a leaf spot disease of Golden Dewdrop (*Duranta erecta* L.) caused by *Alternaria* spp. in Western Ghat region of Maharashtra, India.

**Key words:** *Duranta*, Western Ghat, ornamental plants, *Alternaria*, Leaf Spot, Golden Dewdrop, necrotic,

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## INTRODUCTION

*Duranta erecta* L. (synonymous to *D. repens*), popularly known as “golden dew drop,” is a species of flowering shrub belongs to family Verbenaceae. It is a native plant of Africa, Asia, and South and Central America (Aymard and Grande, 2012). It is widely cultivated as an ornamental hedge plant in throughout the world. It is an upright scrambling shrub with a height of 1–3 m is the first choice of Indian peoples in their garden. Excluding ornamental use its different parts are used to treat variety of diseases (Subsongsang and Jiraungkoorskul, 2016).

Fruit and leaves are widely used in traditional folk medicine to treat swelling, pain, malaria, intestinal worms, abscess and in some cases, serve as vermifuge or diuretic (Karodi *et al.* 2009; Subsongsang and Jiraungkoorskul, 2016). A number of bioactive compounds isolated from *Duranta erecta* L. is said to possess antitumor activity, antibacterial, antifungal and insecticidal properties (Abou-Setta *et al.* 2007; Bhar *et al.* 2016; Ekenma *et al.* 2018). But over the past 2 years (2019 to 2021), in western ghat region of Maharashtra it has been

observed that *Duranta erecta* L. is highly attacked by *Alternaria* spp. During the monsoon season dark necrotic leaf spot have been observed on *Duranta erecta* L. plant in Public Park, private garden, and college campus of western ghat region of Maharashtra, India. Nearby 10-20% of leaf biomass loss arises in *Duranta erecta* L. due to *Alternaria* spp. attack. Therefore, it is the first report of a leaf spot disease of Golden Dewdrop (*Duranta erecta* L.) caused by *Alternaria* spp. in Western Ghat region of Maharashtra, India.

## MATERIALS AND METHODS

Fungal cultures were maintained on *Duranta erecta* L. leaf extract- potato dextrose agar (PDA) medium in a growth chamber at 20°C in the dark. For inoculation, a conidial suspension (approximately 10<sup>4</sup> spores/ml) was collected from 2–3 week old cultures in a small volume of distilled water. Slightly wounded (done by softly scratching the leaf surface with a needle) leaves of plants were inoculated with *Alternaria* spores and mycelia whereas non-wounded (control) leaves of plants were inoculated using a autoclaved *Alternaria* spore and mycelia, and kept it in incubator at 25°C for 5 days. Symptoms, similar to those originally observed began to appear on the leaves of

inoculated with *Alternaria* spores and mycelia whereas non-wounded (control) leaves remained healthy. Experiment was repeated three times with same results.

## RESULTS AND DISCUSSION

In July of 2019 a dark brown, circular necrotic spot was observed on *Duranta erecta* L. for the first time in the garden of Loknete Gopinathji Munde Arts Commerce and Science College Mandangad, District Ratnagiri, Maharashtra, India. Same necrotic spot was again recorded during July of 2020 and 2021 respectively. Further survey was done in Ratnagiri, Raigad and Shindhadurg district

leaves whereas young leaves were rarely affected by *Alternaria* spp. (Figs.1 and 2). Surprisingly, it was also noted that in the month of November when the winter season starts infection of *Alternaria* spp. on *Duranta erecta* L. was slowly decreasing down and plants become free from infection upto the month of December. Monsoon season as well as nearby Arabian Sea contribute a lot to build higher humidity and lower temperature (25 -30°C) in the air might be favour the *Alternaria* spp. to infect the *Duranta erecta* L. (Chavan, 2020). Leaf spot caused by *Alternaria* species have been reported worldwide but there is no evidence which shows that the *Duranta erecta* L. is new host for *Alternaria* spp. (Blagojevic *et al.* 2020). During study it was



Fig.1 (a&b) : Disease symptoms on *Duranta erecta*

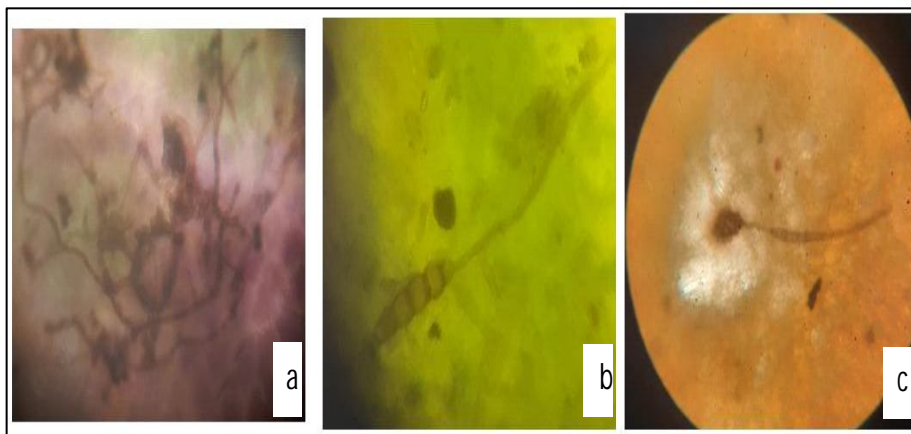


Fig. 2 : Mycelial growth of *Alternaria* sp. on leaves of *Duranta erecta* (a); *Alternaria* spore at infection site (b &c)

of Maharashtra, India to check out the spread of *Alternaria* spp. infection to *Duranta erecta* L. After survey it was revealed that the disease was widely spread under moist and warm conditions and has been reported by earlier authors. (Gumtow *et al.* 2013; Uddin and Kminski, 2014; Velasquez *et al.*

2018). Initial symptoms of disease generally were noted during early July consisted of small brown leaf spots that extended further resulting in discolouration, necrosis and defoliation. Leaf spot were circular, commonly 0.2 to 0.6 mm in diameter. The leaf spot were more severe on the mature

observed that once humidity increases in the air, infection percentage also increases. Similar to this, Reis *et al.* (2006) had reported that at 74% relative humidity, conidial production of *Alternaria alternata* on citrus leaf lesions was low, but it was abundant at 85, 92.5, 96, and 100%. Taking into account the importance of *Duranta erecta* L. in the landscape and medicinal purpose further study is needed to understand the interaction between *Alternaria* spp. and *Duranta erecta* L. Finally, through this study author presents the first report on occurrence of *Alternaria* spp. on leaves of *Duranta erecta* L.

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