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Symptomatology of the leaf blight of periwinkle (*Catharanthus roseus* L.) G.don caused by *Alternaria alternata* (fr.) Keisslar

Lalesh Kumari**Abstract**

Periwinkle (*Catharanthus roseus* L.), is an important medicinal and ornamental plant growing worldwide. Periwinkle plant is attacked by *Alternaria alternata* (Fr.) Keissler causing leaf blight. The disease starts as small light brown to dark brown lesions at margin and tip off the leaf extended inside. Spots enlarge and coalesce forming large patches on the leaf blade. Under favorable conditions the disease extents to leaf petiole.

Keywords: Periwinkle (*Catharanthus roseus*) *Alternaria alternata*, symptomatology

Introduction

Periwinkle (*Catharanthus roseus*) is a handsome garden plant and flowers throughout the year. This gives the plant the name "Sadabahar" (Jain, 1968) [1]. The whole plant has medicinal value (Janardhan, 2002) [2]. Leaves contain higher percentage of VLB alkaloids like Vincristine and Vinblastine that are potent anticancer drugs (Aslam *et al.* 2010) [3]. Though; the periwinkle plant is hardy and particularly free from the attack of insect pests and diseases but is attacked by some insect pests and diseases. Some important diseases which have been reported on periwinkle are the little leaf disease caused by phytoplasma, the dieback or twig blight or top rot caused by *Pythium butleri*, *Phytophthora nicotianae*, *Pythium debaryanum*, *Alternaria tenuissima* and *Collectotrichum dematium*. The other fungal disease reported on this crop are Fusarium wilt caused by *Fusarium solani* and *Sclerotium rolfsii*, blight caused by *Myrothecium roridum*, *A. tenuissima*, *A.alternata*, *Rhizoctonia solani*, *Ophiobolus catharnathicala* and *Glomerella cingulata*. In natural plantations of periwinkle, blight caused by *A. alternata* was observed as an important disease prevailing in and around Muzaffarnagar (U.P.). Observations of the plant under natural condition revealed that the *Alternaria* blight caused by *Alternaria alternata* (Fr) Keissler was responsible for scattered spots followed by blighting of the leaves which ultimately results in serve defoliation of the plant. It is therefore, a direct loss of foliage of the plant that is of great medicinal value. Infestation of disease might also cause changes in the biochemical composition of leaves. Therefore the present investigation was carried out to study the Symptomatology of *Alternaria alternata* on leaf blight of periwinkle.

Material and Method

To study symptoms of disease leaves of periwinkle infected with *Alternaria alternata* were collected. The collected leaves including various stages of disease development. These were visually examined for various types of symptoms from initiation to its full development. Observations were recorded with respect to shape, size and colour of spot/blighted area and its surrounding.

Result and Discussion

Symptoms of the disease are mostly confined to leaves of periwinkle. The disease starts as small light brown to dark brown lesions at margin and tip of the leaf extends inside. (Fig. 1 & 2). Soon the spots enlarge and coalesce forming large patches to dark brown to black colour on the leaf blade (Fig. 3). The infected area of the leaf is surrounded by a distinct yellow chlorotic zone (Fig. 4). Concentric rings typical of *alternaria* disease are seen within the dark brown area of spot (Fig. 5) severely infected plants gave blighted appearance and their leaves get shed off. At this stage if conditions are favorable the disease lesions may extend to stem through leaf petioles. Leaf area around dark brown lesion turned yellowish. This might be due to the loss of chlorophyll. Concentric ring of dark and light colour in the dark brown spot were observed

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similar to alternaria disease on periwinkle and other hosts (Bellow, *et al.*, 1988; Aneja and Singh., 1989; ^[5] Gunashekhar, *et al.*, 1994 Kamble, *et al.*, 2000; Bhatt, *et al.*, 2013; Roopa, *et al.*, 2014)^[4-9].



Fig 1: Periwinkle leaves showing initial small light brown lesions.



Fig 2: Periwinkle leaves showing marginal and tip blight.



Fig 3: Periwinkle leaves showing irregular dark brown to black patches of blight.



Fig 4: Periwinkle leaves showing chlorotic region around dark brown lesion.



Fig 5: Formation of concentric rings due to *Alternaria alternata* on periwinkle leaf

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