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First report of *Alternaria alternata on Chenopodium album* L. from India

Dr. Ramanuj Patel*, Deepika Patel** and A.K. Pandey***

**Department of Biological Sciences, Rani Durgawati University Jabalpur, (MP), India*
***Department Of Zoology and Biotechnology, Goverment Science College Jabalpur, (MP), India*
****Chairman Private University Regulatory Commission Board Bhopal, (MP), India*

(Corresponding author: Dr. Ramanuj Patel)
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ABSTRACT: During surveys of soybean fields in Madhya Pradesh, leaf blight on *Chenopodium album*, resulting in 10-60% weed mortality, was observed. The disease appeared in the middle of February and remained throughout the summer. Symptoms of the disease started with brown necrotic spots which developed concentric rings. These spots then coalesced to form large irregular blotches. Infected leaves wilted, died and dropped off quickly. The present paper deal with new record of *Alternaria alternata* on *Chenopodium album* L. from India.

Key words: New host, *Alternaria alternate Chenopodium album* L.

Chenopodium album L. is annual weed of cultivated fields, especially on rich soils and old manure heaps (Clapham 1962; Grieve 1984) belonging to family Chenopodiaceae. It is often one of the first weeds to appear on newly cultivated soils (Stuart, 1979). The species was introduced from Europe (Densmore *et al.,* 2001; Parker 1990). It is considered to be a very serious weed in many parts of the world (Randall, 2003). In India, *C. album* is the most common and problematic weed in the wheat, and gram fields (Holm *et al.,* 1977; Jain *et al.,* 1998**)**.

During surveys of soybean fields of Jabalpur Madhya Pradesh, India, leaf blight on *Chenopodium album* caused by *Alternaria alternata* showing, 10-60% mortality due to this disease in different soybean crops fields was observed (Fig. 1). The disease starts to appear in the middle of February and remains throughout summer. Mortality rate is high in the rainy season. A symptom of this disease starts with brown necrotic spots which develop concentric rings. These spots then coalesce to form large irregular blotches. Infected leaves wilt, die and drop off quickly.

Isolated from diseased plants, grows rapidly and the colony size reaches a diameter of 3 to 6 cm following incubation at 25°C for 7 days on potato dextrose agar (Fig. 2). The colony surface is grayish white at the beginning, which later darkens and becomes greenish black or olive brown with a light border. The fungus produces abundant branched, septate, brownish mycelium; conidiophores simple, olive-brown, septate, variable in length with terminal conidia, which are solitary or in short chains (Fig. 3). Conidia mostly obligate to obpyriform with a short conical or cylindrical apical beak not exceeding one third of the conidial length, or beakless, smooth walled or verruculose, slightly constricted with 3-8 transverse septa, the lower part each portion has one or two longitudinal septa (Fig. 4). The identification of the fungus on the basis of morphological characters was confirmed by the fungal Germplazm Culture collection center at Jabalpur Madhya Pradesh. For pathogencity tests plastic pots of 7 cm diameter and 10 cm deep were filled with sandy loam soil collected from a cultivated field of Madhya Pradesh University, Jabalpur. Plants of *C. album* at 10-12 leaf stage were transplanted from field into the pots. After transplantation, pots were kept in a wire netting house for 7 days for the establishment of plants and were irrigated with tap water, when required. After the establishment of plants, leaves were sprayed with *A. alternate* spore suspension of 1×109 conidia per ml and incubated at 30 ± 1°C. Plants were covered with plastic bags to maintain 100% humidity for 24 hours then bags were removed and plants were kept under observation for 21 days. Control plants were sprayed with sterile distills water. The pathogen city tests were repeated three times. The first lesion appeared after a period of 15 days. The pathogen was consistently re-isolated from the lesions. The pathogen incites leaf spot diseases. The diseased initially characterized by appearance of several small, circular, light brown spots on any part of the leaf, the spot enlarged rapidly and become dark brown involve large portion of the leaf. This fungus responsible for 65-70% damage to leaves of the weed.

Fig. 1.

Fig. 2.

Fig. 3.

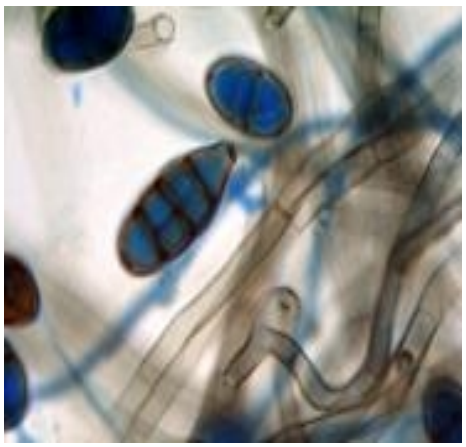

Fig. 4.

Fig.1. *Alternaria alternate* on Chenopodium album L., **Fig.2**. Colony on PDA Plate Pale brown to olive brown.
Fig. 3. *Alternaria* spores 160X Conidiophore 25–60 x 3–3.5 µm consisting of 4–8 large catenate conidia chains.
Fig. 4. Conidia Size 20–63 x 9–18 µm in size mature conidia typically 10–30 x 5–12 µm individual chains of 5–15 conidia.

Fungus isolated from living leaves of *Chenopodium album*. Soybean crop field, of Jabalpur, 8 July 2008, FGCC #177, HDBJ-RN-264, Leg. R. N. Patel, Department of Biological sciences Rani Durgawati. University Jabalpur (M.P.) India.

A survey of the literature (Bilgrami, *et al*., 1979, 1981 and Jamaluddin *et al.,* 2004) reported this species on various plant host **(***Eichhornia crassipes Parthenium hysterophorus* , *Achyrenthus aspera* L.,) but, not on *Chenopodium album*. However, its new host record from India and elsewhere.

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