

Short Report

FIRST REPORT OF *Alternaria alternata* CAUSING LEAF SPOT ON *Populus euphratica* IN IRAN

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Euphrates poplar (*Populus euphratica* Oliv.) as a native tree of the Middle East is a part of vegetation in the Khuzestan province of Iran. During fall 2012, leaf spot and leaf blight symptoms were observed on Euphrates Poplar trees causing significant damages in Karun's riversides (upstream Ahvaz, Veys and Mollasani) in this province. Symptoms consisted of necrotic dark brown, circular to oval spots, unrestricted to veins on both surfaces of the leaves (Fig. 1). Severe infections lead to leaf blight and finally defoliation of the trees. Isolations were made on potato dextrose agar (PDA) medium from surface sterilized (with 1% sodium hypochlorite) leaves. White mycelium was grown and turned to brown after 48 h. For determine the growth parameters and mycelium color, the fungus was grown on PDA and Dichloran-Rosbengal-Yeast extract- Sucrose (DRYES) Agar media. The growth speed and the color of mycelium were recorded after 3 and 7 days respectively (Andersen and Thrane, 1996). The fungus has brown to dark olive mycelium on PDA and DRYES. Spores were born on short, septate, branched or unbranched conidiophores 5.5 μm (2.5-7.5 μm) in length, and green to brown in color. Spores were produced singly or in chains of 2-3 conidia. On PDA the fungus grew rapidly, colonies reaching about 35 mm in diameter in 3 days when incubated at 25°C. The conidia were obclavate to long ovoid, smooth, mostly straight or slightly curved, and pale olive or pale brown, without beaks, with 2-4 transverse septa and 1-2 longitudinal or oblique septa. The conidia were slightly or sharply constricted at the transverse septa and measured 18-35 \times 10-18 μm . According to the morphological characteristics in the literature (Lawrence et al 2013), the isolates were identified as *Alternaria alternata* (Nees: Fr.). Pathogenicity test was conducted by the inoculation of detached leaves from *P. euphratica* plants. Leaves were placed in 12 cm diameter sterile Petri dishes and the petioles of the leaves were covered with cotton masses drenched in sterile distilled water. They were then inoculated with 15 μL of a spore suspension (1×10^5 spores/mL) of *A. alternata* (Fig. 2A). Control leaves were only inoculated with sterile distilled water. The leaves were incubated at 25 \pm 2°C. Typical target spot symptoms, including necrotic, circular to oval, dark brown spots were developed on the inoculated leaves 7 days after inoculation (Fig. 2B). *A. alternata* was consistently re-isolated from the tissue around these spots. In order to assess Poplar-isolated *A. alternata* strains for their ability to toxin production, the fungus was grown at 25°C in 500 ml flasks containing 100 mL potato dextrose broth (PDB). The culture filtrate was then collected by successive passage through glass wool, Whatman No.1 filter paper and finally through a microfilter (0.22 μm). To measure the toxicity of the culture filtrate, fully expanded detached *P. euphratica* leaves were used in the Petri dishes (as described above). Similar to inoculation with spore suspension, the culture filtrate of *A. alternata* was generated leaf spot on the leaves five days after inoculation. The results revealed that the isolate of *A. alternata* pathogenic on *P. euphratica* could secrete pathotoxins. According to the morphological and physiological characteristics, and pathogenicity test on *P. euphratica*, the causal agent of Euphrates poplars is *A. alternata*. To our knowledge, this is the first report of *A. alternata* causing leaf spot on Euphrates poplars in Iran.

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