



First report of *Alternaria alternata* leaf spot on *Xanthium strumarium* L. in Algeria

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Common cocklebur (*Xanthium strumarium* L.) is one of the most noxious weeds in agricultural crops with a worldwide distribution. In February 2016, leaf spots were observed on the leaves of *X. strumarium* in the experimental station of ENSA (Ecole Nationale Supérieure d'Agronomie) in Algiers. The symptoms consisted of circular or irregular brown necrotic spots surrounded with chlorotic haloes. Spots progressively coalesced and ended up by invading most of the leaf blade causing the leaf to dry out and die. A fungus was isolated from the margins of surface-sterilized necrotic spots on potato dextrose agar (PDA) plates incubated at 25 °C in the darkness. Fungal colonies were dark green at the center and light green at the periphery. Conidia were elliptic to obclavate (15–30 × 5–10 µm), olive brown in color, with 2–4 transversal septa and 0–3 longitudinal septa and a short beak measuring 2.5–10 µm; conidia formed long acropet chains (6–12 conidia). Morphological characteristics were similar to those of *Alternaria tenuissima* (Simmons 2007). Total DNA was extracted from mycelia using QIAGEN DNeasy Plant Mini Kit (50). The ITS, RPB2 and gapdh gene regions were amplified and sequenced (Woudenberg et al. 2013, 2015). BLAST analysis of sequences of ITS (GenBank accession No. MH827056), RPB2 and gapdh showed a high similarity (99%) to the sequences of

A. alternata isolate CBS 916.96 (KF465761, KC584375 and AY278808).

To confirm pathogenicity cocklebur leaves were sprayed with conidial suspension (1×10^6 conidia / ml) and incubated under moist conditions at 25 °C. Seven days post inoculation, the leaves externalized necrosis similar to the original symptoms and from which the same fungus was re-isolated; control leaves remained symptomless. To the best of our knowledge, this is the first report of *Alternaria alternata* causing leaf spot on *Xanthium strumarium* in Algeria.

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References

- Simmons EG (ed) (2007) *Alternaria: an identification manual*. CBS biodiversity series, issue 6. ASM Press, Almere
- Woudenberg JH, Groenewald JZ, Binder M, Crous PW (2013) *Alternaria* redefined. *Stud Mycol* 75(1):171–212
- Woudenberg JHC, Seidl MF, Groenewald JZ, de Vries M, Stielow JB, Thomma BPHJ, Crous PW (2015) *Alternaria* section *Alternaria*: species, formae speciales or pathotypes? *Stud Mycol* 82:1–21

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