

First report of *Alternaria alternata* causing leaf blight of potatoes in South Africa

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In recent growing seasons, a new leaf blight was observed on potatoes (*Solanum tuberosum* L.) in various production regions in South Africa. Symptoms were observed before early blight, from 50-60 days after emergence of the potato plants. Typical leaf symptoms were small circular brown lesions, first visible on the abaxial sides of leaves. Lesions resembled those of early blight, but were smaller and did not show concentric rings. During favourable environmental conditions, severe infections were seen as coalesced lesions, blighted leaves and stems. Such severe infections occurred in seasons when high humidity, leaf wetness and warm temperatures were present. Yield losses were reported due to this leaf blight, as conventional fungicidal spray programmes did not adequately control the disease. Isolations from leaf lesions were made on V8 Juice Agar under aseptic conditions. The fungus *Alternaria alternata* (Fr.) Kreissler was consistently isolated and preliminarily identified based on morphological characteristics. Dark brown conidia were produced in chains on conidiophores. Conidia had short beaks and ranged

from 20-60 by 9-18 μm in dimension. Morphological identification was confirmed by amplification of the ITS region. Primers used were AAF2 (5' – TGCAATCAGCGTCAGTAACAAAT – 3') and AAR3 (5' – ATGGATGCTAGACCTTTGCTGAT – 3'), specifically designed for identification of *Alternaria alternata* (4). PCR products were sequenced and the identity of isolates confirmed by a BLAST search on the GenBank database.

Koch's postulates were conducted by inoculation of healthy potato leaves of the cultivar BP1. Spores at a concentration of 10^6 spores/ml were suspended in an oil / surfactant mixture and sprayed onto leaves until run-off. Control plants were sprayed with a sterile oil / surfactant mixture until run-off. Plants were covered by polyethylene bags for 2 days to achieve high humidity levels and maintained in a greenhouse at 25 ± 2 °C. Three days after inoculation, plants were exposed to a moisture regime simulating that of in-field irrigation. Plants were placed in a fogging chamber twice a week for one hour at a time. Leaf blight symptoms similar to those observed on diseased potato plants in the field began to develop three weeks after inoculation. Isolations made from these lesions consistently yielded *Alternaria alternata*. Control plants did not develop any symptoms. Leaf blight on potatoes caused by *Alternaria alternata* has previously been reported in Israel, (2), Brazil (1) and North America (3). This is, however, the first report of *A. alternata* causing leaf blight on potatoes in South Africa. Future research will focus primarily on management of this disease.

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