Journal Article

Studies on leaf spot disease of *Withania somnifera* and its impact on secondary metabolites

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Abstract During an investigation of the disease profile of *Withania somnifera*, it was observed that leaf spot is the most prevalent disease. Repeated isolations from infected leaf tissues and pathogenicity tests showed the association of fungal pathogen identified as *Alternaria alternata* (Fr.) Keissler. Scanning electron microscopy showed various histological changes in the leaf tissues of infected plants. A decrease in total content of reducing sugars (20%) and chlorophyll (26.5%) was observed in diseased leaves whereas an increase was noticed in proline (25%), free amino acids (3%) and proteins (74.3%). High performance thin layer chromatography (HPTLC) analysis of secondary metabolites viz. withanolides, withaferin-A and total alkaloids of the diseased leaves *vis-à-vis* control revealed reduction in withaferin-A and withanolides contents by 15.4% and 76.3% respectively, in contrast to an increase in total alkaloids by 49.3%, information hitherto unreported in *W. somnifera*.

Keywords *Alternaria alternata* - Biochemical changes - HPTLC - Scanning electron microscopy - Microbial deterioration

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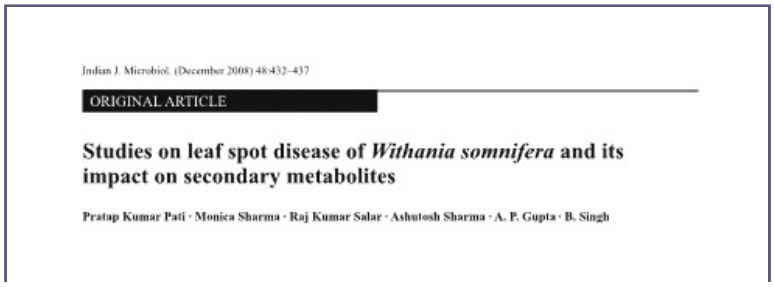

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