

EIDE, J. D.*, and G. A. SMITH, U.S. Department of Agriculture, Agricultural Research Service, P. O. Box 5677 - University Station, Fargo, ND 58105. Characterization of pathogenesis related proteins in *Cercospora* leaf spot susceptible and resistant leaf tissue.

Understanding the nature of *Cercospora* resistance on a molecular basis should certainly enhance our ability to control this destructive fungus. The PR proteins are known to be synthesized in response to *Cercospora* infection. The objective of this study is to determine the presence of these proteins and what roles they play in *Cercospora* resistance. The PR protein chitinase was isolated from leaf spot susceptible (LSS) and resistant (LSR) leaf tissue. Chitinase activity was determined spectrophotometrically by measuring 4-methyl-umbelliferone released from the substrate 4-methylumbelliferyl- β -D-N,N'-diacetyl-chitobiocide. Six-week-old sugarbeet LSR leaves had 138% higher levels of chitinase activity than LSS leaves. Chitinase from leaf tissue was purified using ammonium sulfate precipitation followed by a chitin affinity method. The apparent molecular weight of the chitinase was 34 kDa as determined by polyacrylamide gel electrophoresis. Purified chitinase extracts will be used to check for inhibition of *Cercospora* fungal growth.