EIDE, J. D.*, and G. A. SMITH, U.S. Department of Agriculture, Agricultural Research Service, P. O. Box 5677 - University Station, Fargo, ND 58105. <u>Characterization of</u> 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 spectrofluorometrically by measuring 4-methyl-umbelliferone released from the substrate 4methylumbelliferyl- 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.

selfed transgenic plants were shown by northern hybridization analysis to contrain cecropin messenger RNA, but efficacy against bacterial challenge has yet to be demonstrated. In related studies, using GUS (R-glucuronidase) (usion constructs and microparticle acceleration techniques, a promoter from a class 5 pathogensis related (PR) protein gene of tebacco was more efficiently expressed in sugarbeut leaf tissue than the 355 promoter from caulifiower mosaic virus.