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Defense protein synthesis in response to Cercospora beticola. Sugarbeets synthesize the PR (pathogenesis related) proteins in response to Cercospora fungal attack. We are studying the molecular basis of Cercospora resistance, particularly the role of PR proteins chitinase and glucanase. The objective of this study is to isolate the PR proteins for use in antibody production. These antibodies will be used to screen sugarbeets for Cercospora resistance. The PR protein chitinase was isolated from leaf spot resistant(LSR) leaf tissue by differential centrifugation, ammonium sulfate fractionation and chitin affinity. Optimumization for removal of contaminating proteins was determined to be 12% polyacrylamide, 2.67% bisacrylamide. The apparent molecular weight of the chitinase was 34 kD as determined by polyacrylamide gel electrophoresis. Isolation of β 1,3-glucanase from LSR leaves was accomplished using affinity chromatography. Glucose was bound to polyanhydroglucose and eluted off the column with 0.5% reduced laminarin. The proteins eluted off the column had an apparent molecular weight of 26 to 29 kD. The isoelectric point was determined to be 4.9. The activity of the purified glucanase was 19.9 µM min⁻¹ with a specific activity of 142 µM min⁻¹ mg⁻¹ protein.

two two groups – those causing tip rot and those causing only vescular nerrosis. They ware than somed on either storile filter paper or soil. (52 of the 160 dotates were actually used for vegetative comparibility evaluations. 26 isolates were chosen callesters. They were paired in all possible combinitation to determine the another of regetative comparibility groups (VCGs) present. Those has produced detue, aerial nyoelia as point of colony interaction were considered or gotatively anegatible. Those that are regensively compatible are considered to be genetically infinite raid are placed in the same VCG. Six VCGs have been identified from the 28 testers while not the isolates (19 of 28) fall into one group. The remaining 106 isolates are being screenaed against of the isolates (19 of 28) fall into one group. The remaining 106 isolates are being screenaed vCGa 2-6 containing 2, 12, 2, 2 and 2 isolates, respentively. No relationship exists between VCG and root to recipient of roots. Results indicate that endentic populations of *K* organizations of the start provides that the same VCG is indicated the paper of the remaining to be isolates are being screenaed of the isolates (19 of 28) fall into one group. The remaining to be isolates are being screenaed and root to reconstring 2, 12, 2, and 2 isolates, respentively. No relationship exists between VCG or the resultions of the isolates for storage that endentic populations of *K* organization between VCG