

Section 1 Abstracts: Molecular Biology of Hypovirulence

Examination of a Hypovirulent Isolate (C-18) of *Cryphonectria parasitica* Associated With dsRNA Encapsulated in an Icosahedral Particle. Scott A. Enebak,¹ Bradley I. Hillman² and William L. MacDonald¹. ¹Department of Plant Pathology and Environmental Microbiology, West Virginia University, Morgantown, WV 26506-6057 and ²Department of Plant Pathology, Rutgers University, New Brunswick, NJ 08903, USA

A number of surveys conducted in the central Appalachians have identified many different dsRNA-containing isolates of *Cryphonectria parasitica*. One such isolate is C-18. This isolate was collected in 1989 from a virulent canker in southern West Virginia and was analyzed for dsRNA because of its unusual cultural morphology when compared to 41 other isolates recovered from the same canker. Upon dsRNA analysis, isolate C-18 contained 11 distinct segments of dsRNA, ranging from 1 to 5 kb in size. Preliminary virulence studies resulted in C-18 producing cankers smaller than the hypovirulent control isolate GH-2. A series of virulence experiments using "Golden Delicious" apples, excised dormant American chestnut stems and *in vivo* American chestnut sprouts determined that the C-18 dsRNA significantly reduces virulence when isogenic dsRNA-containing and dsRNA-free asexual progeny are compared. The dsRNA also was found to alter cultural morphology when isogenic dsRNA-containing and dsRNA-free asexual progeny were compared. The dsRNA can be transmitted into other isolates of *Cryphonectria parasitica* via hyphal anastomosis and the 11 dsRNA segments segregate in an all-or-none fashion into conidia. Using cDNA clones from a library representing C-18 dsRNA as probes, 7 of the 11 segments have been identified as being unique with respect to hybridization properties in northern blots. The clones from C-18 do not hybridize to other dsRNAs associated with hypovirulent isolates, D2 (PA), Ep-713 (Europe), NB58-88 (NJ), to another 11-segmented dsRNA from West Virginia, (9B-2-1) or to the Reovirus, wound tumor virus. An icosahedral particle, approximately 60 nm in diameter has been purified from the mycelial tissue using phosphate buffer extraction techniques. It is concluded that this virus is comparable to other viruses in the family Reoviridae and is the first report of such a virus infecting a fungus.