

Pathogenicity, Growth, and Sporulation of Virulent and Hypovirulent Isolates of *Endothia parasitica* in the Southern Appalachians

KUHLMAN, E. George
USDA Forest Service
Southeastern Forest Experiment. Station
Research Triangle Park, North Carolina
27709

Initial studies with hypovirulent isolates of *Endothia parasitica* in North Carolina suggested that three factors might limit the utility of this phenomenon for biological control in the Southern Appalachians. These factors are a. slow rate of spread, short-term survival, and vegetative incompatibility among isolates.

Eleven months after inoculation, the canker width for six hypovirulent isolates of *Endothia parasitica* averaged 2.8 mm whereas the width for six virulent isolates was 63.2 mm. There was no apparent sporulation by hypovirulent cankers whereas 50 percent of the surface of virulent cankers had sporulation. How could pathogenicity and sporulation be improved? One possibility was to look for more susceptible host tissue. However, four hypovirulent isolates showed almost no virulence when injected into small (less than 0.5-inch diameter) sprouts. In contrast, four virulent isolates caused cankers on 84 percent of the stems. In 1979, similar small sprouts were inoculated with hypovirulent or virulent isolates at three times during the growing season. Stem sections were inoculated at the same time to serve as a saprophytic check. The interim results of this experiment suggest limited invasion by the hypovirulent isolates in contrast to vigorous invasion and sporulation by virulent isolates.