

Pathogenicity and Sporulation of  
Virulent and Hypovirulent Strains  
of *Endothia parasitica*

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Two virulent and seven hypovirulent strains of *Endothia parasitica* were screened for pathogenicity, asexual and sexual sporulation. Strains, representing collections from France, Italy and the United States, were inoculated into 2- to 10-year-old American chestnuts for evaluation of pathogenicity and sporulation. Over a 7-month period, virulent strains invaded host tissue extensively with 98 percent of the cankers showing evidence of asexual sporulation. Single conidial cultures obtained from virulent laboratory cultures and field cankers were morphologically similar to the parental strains. Cankers produced by Italian and American hypovirulent strains were from 10 to 85 percent smaller than those from virulent strains while one French hypovirulent strain was nonpathogenic. In contrast to virulent cankers, asexual sporulation was observed in only 64 percent of the hypovirulent cankers. Because fewer stromata were observed on hypovirulent cankers, pycnidial production may be correspondingly lower. Single conidial cultures from American hypovirulent strains resembled the parental strain. As many as three different morphological types were observed in single conidial cultures from Italian hypovirulent strains. Perithecia were present in 67 percent of the virulent cankers in the field, but were absent on all hypovirulent cankers. Laboratory crosses between sexually compatible virulent and hypovirulent strains resulted in perithecia only when conidia from hypovirulent isolates were applied to the virulent mycelium.