

Abstract

Colletotrichum gloeosporioides is an important pathogen of tropical and subtropical fruits. The *C. gloeosporioides pelB* gene was disrupted in the fungus via homologous recombination. Three independent isolates, GD-14, GD-23, and GD-29, did not produce or secrete pectate lyase B (PLB) and exhibited 25% lower pectate lyase (PL) and pectin lyase (PNL) activities and 15% higher polygalacturonase (PG) activity than the wild type. The PLB mutants exhibited no growth reduction on glucose, Na polypectate, or pectin as the sole carbon source at pH 3.8 or 6.0, except for a 15% reduction on pectin at pH 6.0. When *pelB* mutants were inoculated onto avocado fruits, however, a 36 to 45% reduction in estimated decay diameter was observed compared with the two controls, the wild type and undisrupted transformed isolate. In addition, these *pelB* mutants induced a significantly higher host phenylalanine ammonia lyase activity as well as the antifungal diene, which is indicative of higher host resistance. These results suggest that PLB is an important factor in the attack of *C. gloeosporioides* on avocado fruit, probably as a result of its virulence factor and role in the induction of host defense mechanisms.