

Abstract

The microbial population on the pineapple fruit shell, black rot (*Chalara paradoxa* (De Seyn.) Sacc. = *Thielaviopsis paradoxa* (De Seyn.) Hohn., teleomorph: *Ceratocystis paradoxa*) incidence and severity were monitored during a 14-month period. There was low variability in microbial counts from month to month, except in November when rainfall was high. Yeasts made up the majority of the microbial population and the rest was filamentous fungi. Black rot incidence in wet fruit was negatively correlated with filamentous fungi count in wet fruit, suggesting that some of the filamentous fungi on the fruit were washed away, predisposing the fruit to black rot. Rainfall did not play a major role in black rot incidence and severity. Total microbial counts were correlated to rainfall in the month of harvest. A naturally occurring, epiphytic antagonist population is present on the pineapple fruit as evidenced by the reduction of black rot severity in fruit treated with pineapple fruit wash water and black rot spores. The most frequently isolated yeasts from the pineapple fruit shell were able to inhibit *C. paradoxa* growth *in vitro*. The most promising yeast isolate was *Pichia* (*Pichia guilliermondii*). A yeast mixture containing all five yeast isolates individually tested was able to reduce black rot severity by half compared to the control. The use of *Pichia* or the yeast mixture was compatible with current industry practice of holding fruit at a low temperature (10°C) and the use of Bayleton. Combining the isolate *Pichia* or the yeast mixture with a half dose of Bayleton resulted in complete control of black rot comparable to control achieved with a commercial dose of Bayleton. The yeast isolate *Pichia* and the yeast mixture containing all five isolates tested were able to reduce spore germination, germ tube length, and dry matter weight of *C. paradoxa* . The mode of action by *Pichia* appeared to be competition for space and nutrients. As for the yeast mixture, mode of action appeared to be competition for space.