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A study of the antagonistic activity of two bacteria on *Botryodiplodia theobromae*, a pathogen of banana fruits

Colletrichum musae and *Botryodiploia theobromae* were isolated from typical crown rot lesions on bananas and Koch's postulates were performed. The more aggressive pathogen infecting individual fingers was B. *theobromae* and therefore this was used in the following experiments.

Flavobaterium sp. and *Pantoea agglomerans*, previously isolated from food sources, suppressed growth of the pathogen on agar media, the former being more effective. A bacterial cell suspension (30 µL) of ca. 106 cells/ mL and a conidial suspension (*ca.* 105 conidia/ mL) of *B. theobromac* (200 µL) in 2% glucose were mixed and aliquots (each 20 µL) were placed on glass slides. Both bacteria, *P. agglomerans* and *Flavobacterium sp.* inhibited germination of conidia of the pathogen separately. When observed through a microscope after 4 h while mean percentage germination of pathogen conidia was 91%, in the presence of each bacteria these values were 57% and 37% respectively.

Inoculation of individual fingers with the conidial suspension of the pathogen (200 µL) along with each bacterium (30 µL) suppressed lesion development.

To rule out nutrient competition, the minimal medium of Davis and Mangioli (Cruickshank, 1962) with and without 10% sucrose was inoculated on to cut stems of bananas along with the pathogen and each bacterium separately. Control fruits were inoculated with distilled water in place of the medium. The addition of medium did not have an effect on the degree of antagonism towards the pathogen. Results suggest that nutrient competition may not play a role in the antagonism of the bacteria.