THERMAL INACTIVATION OF *ALICYCLOBACILLUS ACIDOTerreSTRIS* SPORES ISOLATED FROM A FRUIT PROCESSING PLANT AND GRAPE JUICE CONCENTRATE IN SOUTH AFRICA

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*Alicyclobacillus acidoterrestris* is a non-pathogenic, spore-forming bacterium that can cause spoilage of high acid food products. In this study, thermal inactivation at 95°C for two strains of *A. acidoterrestris* isolated from contaminated fruit juice concentrates were investigated in a 0.1% (m/v) peptone buffer solution (pH 7.04) and grape juice (pH 4.02, 15.5 °Brix). The thermal inactivation of *A. acidoterrestris* spores followed first-order kinetics, suggesting that as the microbial population is exposed to a specific high temperature, the spores inactivated at a constant rate. D-values determined in the buffer solution were calculated to be 1.92 min and 2.29 min, while in grape juice D-values were found to be 2.25 min and 2.58 min for the two strains tested. From this study it is clear that the D-value is dependent on the strain tested, but also on the soluble solids of the solution the cells are suspended in. The soluble solids therefore play a role in protecting the bacterial spores. The results indicated that the spores of *A. acidoterrestris* isolated from South African fruit juice concentrate may survive the pasteurisation treatment commonly applied during processing. Since the implementation of a more severe heat process required to inactivate spores of *A. acidoterrestris* will produce unacceptable organoleptic changes in the product, it is recommended the risk of spoilage should be minimised through the use of good manufacturing practices during fruit processing and the implementation of HACCP procedures, substituting Food Safety Hazards, normally associated with HACCP studies, with the risk of spoilage by *A. acidoterrestris* in the final product.