

**CONTROL OF *ALICYCLOBACILLUS ACIDOTERRESTRIS* DSM 3922
IN APPLE JUICE BY GRAPE SEED EXTRACT**

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Alicyclobacillus acidoterrestris has the ability to produce off-flavor compounds in apple, tomato, white grape, grapefruit, orange and pineapple juices leading to spoilage and high economic losses. Recently, the use of natural antimicrobials to control the growth of this bacterium in fruit juices has been focused on. In this study, the antimicrobial activity of grape seed extract (GSE) against *A. acidoterrestris* vegetative cells was determined in the reconstituted apple juice (pH 3.82, °Brix 11.3) during storage at 37°C (Molva & Baysal, 2014). At the end of 336 h, reductions were between 3.14-4.63 log CFU/mL in the cell numbers in the apple juice with GSE (0.23-3.6%). Survival data of *A. acidoterrestris* cells obtained in the apple juice with different concentrations of GSE did not follow a first-order kinetics. Log-linear tail and the Weibull models were used to model the inactivation as a function of time (h) and the Weibull model fitted the experimental data better than the log-linear tail model. Scanning electron microscopy showed that the main target of GSE may be the cell membrane of *A. acidoterrestris* leading to leakage of cellular constituents and may prevent the development of vegetative cells into spores.

Keywords: Juice spoilage, inhibition, modeling

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