ABSTRACT

The aim of this work was to study the population survival of *Lactobacillus acidophilus* (La) and *Bifidobacterium bifidum* (Bb) in fruit smoothie. It was used a response surface methodology to evaluation of resistant starch concentration (prebiotic ingredient) and aeration time. The smoothie was made of three fruit flavors (melon, sleeve and pineapple) and it was subjected to pasteurization process at 70 °C for 60 seconds. The smoothies were inoculated with Bb and La in order to obtain population of $10^8$ CFU per mL and $10^7$ CFU per mL, respectively and the beverages were stored at 8 °C during 28 days. Microbiological analyzes to enumeration the population of probiotic microrganisms were realized and the results showed that no significant effect ($p > 0.05$) of resistant starch concentration and aeration time on population of *L. acidophilus*. However, it was found that the survival of *B. bifidum* is significantly influenced by both. The formulation was maintained the largest population of *B. bifidum* occurred when concentration of resistant starch was 2.56 % with 120 seconds of aeration process (+1, +1), although all samples were showed population above $10^7$ CFU per mL for both microoganisms. Sensory analysis was performed using two samples: the optimal formulation (+1, +1) and the formulation without addition of resistant starch (-α, 0). Acceptance testing was conducted with 76 tasters using the hedonic scale of nine points and analyzing four attributes. The sample which resistant starch was not added was considered the optimal formulation for fruit smoothie.