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## Stimulating the viability of *Bifidobacterium spp.* in synbiotic fermented milk by co-culturing with *Lactobacillus paracasei* 441 and inulin

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*fidobacterium spp.* and *Lactobacillus spp.* are probiotic bacteria have been incorporated in dairy-fermented products as  $m{D}$ live cultures to assist in maintaining the balance and health of human intestinal microflora. The aim of this study is to examine the ability of three Bifidobacterium (bifidum, breve and infantis) and Lactobacillus paracasei 441 strains to survive at different (1.5, 2.0, 2.5 and 3.0) pH values and different (0.5 and 1.0%) bile salts concentrations for 3h, also to determine the stimulatory effect of L. paracasei 441 strain in combination with inulin on the viability of B. (bifidum, breve and infantis) strains in fermented milk during storage condition. Each strain of B. (bifidum, breve and infantis) were cultured with and without L. paracasei 441, then each treatment was split into three groups [0, 1.0 and 3.0 inulin (w/v %)] and incubated at 37°C for 3h. The viable bacterial counts of all strains were cultured in fermented milk during 15 days at 4°C was determined. The initial bacterial population reached 8.00 ±0.0 Log CFU/mL on an average. Our results showed that the bacterial populations of B. (bifidum, breve and infantis) strains in the control samples [without co-cultured with (L. paracasei 441 and inulin)] reached (7.45±0.0, 7.11±0.0 and 7.22±0.0) Log CFU/mL on an average, respectively. However, when the tested strains co-cultured with L. paracasei strain 441 strain in combination with 1.0 % of inulin the bacterial population reached (8.67±0.0, 8.24±0.0 and  $8.70\pm0.0$ ). These results were indicated that there was a significant difference (P > 0.05) in the growth of B. (bifidum, breve and infantis) in fermented milk co-culturing with Lactobacillus paracasei 441 and Inulin. Therefore, our results indicated that the presents of L. paracasei 441 with 1% inulin was maintained and stimulated the viability of Bifidobacterium strains during 15 days at 4°C.

#### **Biography**

Amira A Ayad, Ph.D, is a Research Associate in the Food and Nutrition Sciences program at the North Carolina Agricultural and Technical State University-Center for Excellence in Post-Harvest Technologies. In this position, she taught several courses related to food analysis and food microbiology. Her research has focused on two main areas: Food Fermentation and Food Safety. Our research group focused on studying the fermentation processes of microorganisms like bacteria and how probiotic cultures as functional foods could influence the gut health and eventually human health. In addition to that, our research groups focus on studying natural antimicrobial properties against foodborne pathogens.

#### **Research Interest:**

Food Fermentation and Biotechnology, Food Safety and Microbiology

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