

ABSTRACT

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THE EFFECT OF VARYING RATIOS OF *Lactobacillus* sp. CO-CULTURES ON THE GROWTH OF *Bifidobacterium animalis* subsp. *lactis* BR2-5

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Probiotics are beneficial microorganisms which provide beneficial metabolic functions and health benefits to the host within the human gastrointestinal (GI) tract. One such microorganism is *Bifidobacterium animalis*, which is a Gram-positive, non-sporing, and non-motile anaerobic bacteria which can be utilized to treat various human GI diseases but however is quite tricky to grow due to being a strict anaerobic bacterium. The aim of this research is to determine the best co-culture ratio of *B. animalis*, *L. acidophilus*, and *L. fermentum* to help support the growth of *B. animalis* within aerobic conditions. Preliminary research identified the culture that was being used as well as making a growth curve to determine the growth rate from the slopes of the equation of the trendline for each microbe used. The result of this study showed that within the 5 ratios used being (1:0:0), (1:1:1), (2:1:1), (1:2:1), and (1:1:2) with the microbes being *B. animalis*, *L. acidophilus*, and *L. fermentum* respectively, the co-culture ratio which showed the highest growth rate was 1:2:1, however the amount of living *B. animalis* that is present within the co-culture has not been determined yet. This study has attempted to isolate *B. animalis* with a few selective media which were mupirocin media, sodium propionate-lithium chloride media, and *Bifidobacterium* media where results showed that the media utilized either inhibited the growth of *B. animalis* which was seen with the mupirocin media and *Bifidobacterium* media or did not inhibit the growth of *L. acidophilus* or *L. fermentum* being the sodium propionate-lithium chloride media.

Keywords : Probiotics, Co-cultures, *B. animalis*, *L. acidophilus*, *L. fermentum*

Reference : 50 (2001-2023)