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Fermentation of egg white milk by probiotic bacteria

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Due to the high nutritional value, bioavailability, and excellent functional properties of egg proteins, Capriovus Ltd. has produced "Totu milk" from egg white, which can serve as an alternative for consumers suffering from milk protein allergy or lactose intolerance. Probiotics play a remarkable role in promoting immunological, digestive, and respiratory functions, besides to improve lactose intolerance symptoms. The objective of our study was to select the most promising probiotic *Lactobacillus* and *Bifidobacterium* strains for egg white milk fermentation, to determine the cell count, pH changes and study the effect of different kind of carbohydrate on the fermentation. It can be established, that both the examined *Lactobacillus* and *Bifidobacterium* strains were grown on egg white milk without sugar. The pH changed during 24 hour fermentation in the range pH 4.9-5.6 and pH 5.5-5.7 in case of *Lactobacillus* and *Bifidobacterium*, respectively. It was also observed that pH value after 24 hours of fermentation with glucose 2% added reaches pH 3.5-3.9 when using *L. helveticus* lafti RL 10, *L. rhamnosus* Rosell-11, *L. salivarius* CRL 1328, *L. plantarum* 299v, *L. casei* 01 and *L. acidophilus* 150. In case of *Bifidobacterium* strains the rate of pH decrease was lower than *Lactobacillus*. The pH reached to 4.1-4.3 on egg white milk with 2% glucose fermented by *Bifidobacterium longum* Bb46 and *B. longum* DSM 16603. The specific growth rate and generation time were determined in case of the most promoting *Lactobacillus* and *Bifidobacterium* strains. The effect of different types of sugar (glucose, fructose, saccharose) in concentration 2% on the pH and growth of *L. plantarum* 299V was also studied. It was concluded that there was no significant difference between the examined carbohydrates after 24 hour fermentation, the cell count $3-4 \cdot 10^8$ CFU/mL in all cases. Keywords: Egg white, Protein, allergy, probiotics, fermentation.