

## EFFECT OF PREBIOTICS IN *DIOSCOREA ALATA* (RAJA ALA) ON THE SURVIVAL OF *LACTOBACILLUS ACIDOPHILUS* IN A FERMENTED BEVERAGE DURING REFRIGERATED STORAGE

A.M.N.L. Abesinghe, D.C. Mudannayake and M.K. Ranasinghe

*Department of Animal Science, Faculty of Animal Science & Export Agriculture, UvaWellassa University, Badulla*

Corresponding author: nishani04002@yahoo.com

The objective of the present study was to determine the effect of prebiotics in *Dioscorea alata* (*Raja ala*) tubers on *Lactobacillus acidophilus* in a fermented beverage during cold storage (4 °C). There were four treatments; probiotic beverage with 2% of dried powder of *D. Alata* (T<sub>1</sub>), 3% of hot water extract of *D. alata* (T<sub>2</sub>), 3% of cold water extract of *D. alata* and 1% of inulin (T<sub>4</sub>). Synbiotic beverage was prepared using a freeze dried lactic culture (La-5<sup>®</sup>) which contained *Lactobacillus acidophilus* strain LA-5. *D. alata* tubers were analyzed for dry matter, ash, crude protein, crude fiber, total soluble solids and inulin contents. Population of *Lactobacillus acidophilus*, titratable acidity and pH of symbiotic beverage were determined at day 1, 3, 5 and 7 of storage at 4 °C. Selected treatment was used to develop flavoured symbiotic beverage and organoleptic properties were measured at the first day of storage. Inulin content of *Dioscorea alata* tubers was 0.58 ± 0.07 % (fresh weight basis). Incorporation of Raftilose<sup>®</sup> and hot water extract of *Dioscorea* has an effect ( $p < 0.05$ ) on the population of *L. acidophilus* during 1<sup>st</sup> and 3<sup>rd</sup> day of storage at 4 °C. Cardamom flavoured beverage was highly preferred by the panellists compared to vanilla flavour. These results support the conclusion that the use of *Lactobacillus acidophilus* and 3% hot water extract of *Dioscorea alata* is a desirable method to develop a symbiotic beverage with enhanced therapeutic activity over cold storage.

**Keywords:** *Dioscorea alata*, Inulin, Prebiotic, Probiotic