Abstract No: 889 ***Health and Hygiene***

EVALUATION OF THE PREBIOTIC EFFECT OF LOCAL YAMS GROWN IN SRI LANKA WITH *LACTOBACILLUS CURVATUS*

P.L. Mary[1], N. Jeyagowri[2], J.A.M.S. Jayathilake[3], N.B. Parahitiyawa[3] and W.M.T. Madhujith[4]*

[1] Department of Agricultural systems, Faculty of Agriculture, Rajarata University of Sri Lanka, Sri Lanka
[2]Department of Biological Science, Faculty of Applied Science, Vavuniya Campus, University of Jaffna, Sri Lanka
[3] Department of Oral Medicine and Periodontology, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka
[4]Department of Food Science & Technology, Faculty of Agriculture, University of Peradeniya, Sri Lanka
**madujith@yahoo.com*

Live microorganisms, which confer a health benefit on the host when administered in adequate amounts, are termed probiotics. Prebiotics are food ingredients that are directly passed into large intestine without being digested in the small intestine. Prebiotics serve as substrate for Probiotics. Locally available yam varieties are known to possess high nutritional and medicinal values. Furthermore, they are rich in soluble dietary fibre, which may have a great potential as prebiotics. This study evaluated the prebiotic effects of three locally available yams, namely *Canna edulis* ('Buthsarana'), *Amorphophallus campanulatus* (*Kidharam*) and *Maranta arundinacea* (Heen ala or Arrow root) using *Lactobacillus curvatus* isolated from fermented rice. Yam samples were obtained, dried, powdered and incorporated at 3% (w/w) level into sterile skim milk medium containing 12% (w/v) solids and activated culture [10% (v/v)]. The mixture was incubated at 37 $^{\circ}$C anaerobically for 12 hours followed by refrigeration at 4 $^{\circ}$C. The plate counts and pH of each sample were monitored during the storage period on 0, 7th, 14th, 21st and 28th day. Inulin, which is well known for its prebiotic properties, was used as the reference for comparative purposes. The number of colonies declined initially with the reduction of pH of all yam samples upon storage. This may be due to the post acidification that suppresses the growth of *Lactobacilli*. 'Buthsarana', Arrow root and 'Kidaram' exhibited significantly high ($p<0.05$) number of colony forming units ($\log_{10}$ values) by 28th day (6.33, 5.96 and 6.34, respectively) compared to the sample carrying inulin (5.75). The effect of 'Buthsarana' and 'Kidaram' flour was not significantly different ($p>0.05$) from each other while the prebiotic effect of 'Buthsarana' and 'Kidaram' was higher than that of arrow root. Both 'Buthsarana' and 'Kidaram' showed cfu number slightly higher than the lowest recommended therapeutic level of 6 $\log_{10}$/ml at the end of storage of 28th days. The negative control showed the highest pH (5.78) at the end of the storage indicating poor growth of *Lactobacilli*. Arrow root (pH, 4.3) showed the lowest pH with *Lactobacillus curvatus*. It can be concluded that 'Kidaram' and 'Buthsarana' exhibit high prebiotic effect with *Lactobacillus curvatus* while other yam flours tested also possess considerable prebiotic effect. Therefore, local yams can be used as potential prebiotics.