



Development of Soursop (*Annona muricata* L.) Incorporated Probiotic Frozen Yoghurt Fermented by *Lactobacillus acidophilus*

B.N.N. Silva^{1*}, Kasun Hettige², N.E. Wedamulla¹ and W.A.J.P. Wijesinghe¹

¹*Department of Export Agriculture, Uva Wellassa University, Badulla, Sri Lanka*

²*National Institute of Post-Harvest Management, Jayanthi Mawatha, Anuradhapura, Sri Lanka*

**Corresponding Author E-mail: bnnawodanie@gmail.com, +94719752276*

Soursop (*Annona muricata* L.) is an underutilized tropical fruit grown in Sri Lanka with the promising nutritional and therapeutic value. The study was conducted to develop soursop incorporated frozen yoghurt (SFY) and to determine its physicochemical properties. Two different wiped cream levels (5% and 10% w/w) and three levels (10%, 20% and 30% w/v) of pasteurized soursop pulp was tested. The best product accepted from sensory evaluation, was tested against the control (without added fruit) for physicochemical, microbial, shelf life and therapeutic value. Results showed that 80% fresh milk, 20% soursop fruit pulp were the best combinations for SFY ($p \leq 0.05$). According to the proximate analysis moisture, protein, fat, fiber, ash and carbohydrate content of SFY were $71.82 \pm 0.4\%$, $4.36 \pm 0.2\%$, $6.29 \pm 0.2\%$, $0.91 \pm 0.1\%$, $0.93 \pm 0.1\%$ and $15.84 \pm 0.2\%$, respectively. During storage, pH and titratable acidity of developed SFY were varied from 4.54 ± 0.01 to 4.47 ± 0.02 , and 0.93 ± 0.05 to 4.53 ± 0.01 accordingly. Total soluble solid content, water holding capacity and syneresis of SFY contain $26.83 \pm 0.2\%$, $14.33 \pm 1.5\%$ and 13 ± 0.1 respectively. Yeast and mold count did not exceed the Sri Lankan Standard Institute (SLSI) recommended values during the 8 weeks of storage. By measuring probiotic count the therapeutic value was measured in SFY. Probiotic count of SFY was exceeded the minimum therapeutic value during the storage period. Incorporation of 20% (w/v) of soursop into frozen yoghurt is possible and the product can be safely stored for 8 weeks.

Keywords: Fermentation; Frozen yoghurt; Milk; Probiotics; Soursop