Development of Madan (*Syzygium cumuni* L.) Incorporated Novel Yoghurt

M.K.A. Shanika, N.E. Wedamulla* and W.A.J.P. Wijesinghe

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

Madan (*Syzygium cumuni* L.) is an underutilized fruit crop grown in Sri Lanka with promising functional properties. In this study, well ripen Madan fruits were used to develop fruit incorporated set yoghurt. Yoghurts were prepared with different sugar (0, 5 and 10% w/v) and gelatin (0.6, 0.7 and 0.8% w/v) levels to select the best combination. Pasteurized fruit pulp was added at the levels of 7.5, 10, 12.5, and 15% w/v with a pre-selected level of sugar and gelatin. Based on sensory evaluation (9-point hedonic test), selected treatment was tested against the control (set yoghurt without added fruits) for physicochemical and phytochemical properties. Shelf life and microbial analysis were carried out in three days intervals for 18-days. Based on the results of sensory analysis, it was revealed that 10% sugar, 0.8% gelatin, and 10% of fruit pulp were the best combination for the production of fruit yoghurt. Addition of Madan increased ($p<0.05$) the phenolic content (3.04±0.1 mg GAE 100 g^{-1} yoghurt), monomeric anthocyanin (4.42±0.4 mg L^{-1}) and antioxidant activity (Ferric reducing power assay: 0.14±0.0 µ mol Fe^{+2} 100 g^{-1}: IC50: 331.08±1.5 ppm) of fruit yoghurt compared to that of the control. Storage of the yoghurt samples for 18-days under refrigerated condition (<5ºC), increased ($p<0.05$) the acidity while decreased ($p<0.05$) the pH. Syneresis increased ($p<0.05$) with the storage period in the control sample while fruit yoghurt exhibited the decreasing ($p<0.05$) pattern with the time. Yeast and mold, *Staphylococci* spp, and *Escherichia coli* did not exceed the Sri Lankan Standard Institute recommendation during the 15 days of refrigerated storage (<5ºC). In conclusion, 10% fruit pulp was the best level for the production of Madan incorporated set yoghurt with promising antioxidant properties which have 15 days of shelf life at refrigerated conditions (<5ºC).

.

Keywords: Anthocyanin, Antioxidant activity, Total phenol, Yoghurt, Madan