

2542 - Development and Characterization of Ash Gourd (*Benincasa hispida*) and Beetroot (*Beta vulgaris*) Jam Incorporated with Cinnamon (*Cinnamomum verum*) Flavour

J. Ketharany¹, S. Sivakanthan¹, R. Sarathadevi¹

Despite the increasing demand for natural and healthier food options, many commercially available jams are still artificially flavoured and coloured. This creates a need for healthier natural alternatives to meet the evolving preferences of consumers. Therefore, this research study was focused on the development of ash gourd (*Benincasa hispida*) jam added with beetroot (*Beta vulgaris*) extract incorporated with cinnamon (*Cinnamomum verum*) flavour. After a series of preliminary experiments, six jam formulations were developed with ash gourd pulp (AGP), beetroot extract (natural colorant) (BE), and cinnamon powder (natural flavouring) (CP) based on SLS standards. The amount of AGP (50 g) and CP (0.2 g) were kept constant, while the BE was added in varying amounts, including AGP only (control: C1), AGP with CP (control: C2), AGP with 5 g BE and CP (F1), AGP with 10 g BE and CP (F2), AGP with 15 g BE and CP (F3) and AGP with 20 g BE and CP (F4). The sensory, and colour analyses were carried out for all formulations. The F3 formulation was selected as the best in terms of texture, aroma, taste, and overall acceptability. The lightness (L*) and yellowness (b*) were decreased with increasing BE concentration, whereas redness (a*) was increased with increasing BE concentration. Proximate composition was analysed for the formulation F3: crude protein- 0.72±0.04%, crude fat- 0.65±0.06%, crude fiber- 0.18±0.01%, ash- 0.28±0.01%, and moisture- 25.86±0.86%. Further, the microbial count of F3 formulation was monitored every 15 days for 75 days under both room (30 °C) and low (4 °C) temperature storage conditions. No detectable microbial growth was observed in either storage condition. Total phenolic content (TPC) of the F3 formulation was 0.38 mg GAE (gallic acid equivalent)/g. Overall, this study demonstrated that beetroot could serve as a viable alternative to synthetic colorants in ash gourd jam, while cinnamon can be a suitable substitute for synthetic flavouring.

Keywords: Ash gourd, beetroot extract, cinnamon, jam, sensory analysis

¹Department of Agricultural Chemistry, Faculty of Agriculture, University of Jaffna, Sri Lanka