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Farmers’ and academia’s views”

Development of acid casein enriched, stabilised and thickened yoghurt using *Musa acuminata* (Green banana) and *Ensete ventricosum* (Bulla) flours

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Abstract

High acid milk contains coagulated milk proteins, which can be used to stabilise and improve the texture of milks. The purpose of the research was to develop and promote fermented milk production technology that used casein derived from high acid milk, stabilisers which included gelatin, corn starch, green banana/matoke (*Musa acuminata*) and bulla (*Ensete ventricosum*) in powder forms. The study included a lab-based experiment aimed at creating stabilised, thickened, and acid casein-enhanced yoghurt samples. The nutritive value of yoghurt samples was determined. The yoghurt samples’ rheological qualities were also determined. Sensory quality and consumer acceptability of stabilised, thickened, and acid casein enriched yoghurt were assessed, as well as small-scale milk processors’ willingness to adopt the yoghurt. The results of the study indicated that yoghurt having acid casein and the yoghurt including skim milk powder did not differ significantly in terms of protein ($5.0\pm 1; 5.0\pm 1$), carbohydrates ($13.5\pm 0.3; 13.8\pm 0.3$), or minerals ($0.7\pm 0.01; 0.6\pm 0.02$). These two yoghurt samples differed in terms of fats ($3.3\pm 0.1; 3.0\pm 0.1$), moisture ($88\pm 1; 85\pm 1$), and acidity ($1\pm 0.1; 0.7\pm 0.05$). In YBA (Yoghurt containing bulla flour and acid casein) and YCA (Yoghurt containing corn starch and acid casein), the acidity value was significantly distinct ($0.7\pm 0.05; 0.6\pm 0.05$) and lowest. All of the yoghurt samples had the same pH value (4.6 ± 0.1). The maximum consistency values (8394.39 ± 317.46 g.sec; 8030.25 ± 319.02 g.sec) were found in YBAG (Yoghurt containing bulla flour, acid casein and gelatin) and YMAG (Yoghurt containing matoke flour, acid casein and gelatin) respectively. YBAG had the greatest Cohesiveness (-387.09 ± 17.99 g) and Viscosity Index values (-411.14 ± 14.19 g.sec), which were significantly distinct. In Y CONTROL (Yoghurt containing no acid casein or skim milk powder), YB (Yoghurt containing bulla flour), and YBA, whey separation values ($9.65\pm 0.02; 9.21\pm 0.03; 9.01\pm 0.01$) were significantly distinct and greatest. Overall, the yoghurt samples with bulla and matoke flours were the most liked. Small scale milk processors’ (SMEs) willingness to adopt the novel fermented milk product was satisfactory. SMEs and farmers should attend training sessions to improve their knowledge of locally produced value-added dairy products such as the developed yoghurt.

Keywords: Bulla, casein, enset, green banana, high acid milk