

Evaluating yoghurt quality attributes with banana (*Musa acuminata*) peel integration

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Banana peels, often discarded, are rich in bioactive compounds such as pectin. Integrating them into yogurt enhances its quality. This research assesses the impact of “Kolikuttu” banana (*Musa acuminata*) peel on yogurt quality. Ripe banana (Stage 6) was locally sourced, and their peels obtained after wash with 200 ppm chlorinated water. A portion of peels was dried, then powdered, 0.1 %, 0.5 %, 1 % & while another remained fresh and pulped 1%, 5%, 10% were separately incorporated into yogurts at 42°C. Starter culture “ABY10” containing *Streptococcus thermophilus*, *Lactobacillus bulgaricus*, *Bifidobacterium animalis subsp. lactis* 1:1:1 ratio was added at 0.01% (w/v). After incubate at 42°C for 4 hours and refrigerated at 4°C. Then the shelf life, pH and syneresis were analyzed. Statistical analysis (ANOVA) was done with Tukey test ($P < 0.05$) to compared groups, and sensory evaluation by 30 panelists with 7-point scale to gauged consumer acceptance. Shelf life of the dried peel powder (DPP) incorporated yoghurts was limited to 7 days but shelf-life fresh peel pulp (FPP) incorporated yoghurts up to 28 days in 1 % and 5 % incorporation & 21 days in 10 % incorporation yoghurts. The data also reveals that end of the shelf-life, 10% FPP yoghurts exhibit $\text{pH} = 4.46 \pm 0.04$ which was significantly ($P < 0.05$) lower than the control ($\text{pH} = 4.53 \pm 0.01$). Microbial break down pectin presence in peel (6.8 % w/w) leading to the to this phenomenon. 10% and 5% FPP demonstrate significantly ($P < 0.05$) lower syneresis respectively $0.28 \pm 0\%$ and $0.12 \pm 0.01\%$ compared to the control as pectin reduces whey exudation. 10% FPP incorporation also exhibited a similar sensory attribute when compared to the control. The study demonstrated that incorporation of 10% FPP is the best level to enhance the quality attributes of the yoghurts.

Keywords: Banana, Peels, Pectin, Syneresis

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