# THE EFFECT OF NATURAL STABILIZERS ON FROZEN YOGHURT

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In order to increase the profitability and to improve the sensory qualities of yoghurt, stabilizers are frequently used. However, health cautious consumers are highly concerned about using natural additives over synthetics during dairy production. Hence, the study aimed to evaluate the effect of natural stabilizers on different quality characteristics of frozen yoghurt cultured with *Streptococcus thermophillus* and *Lactobacillus delbrueckii* sub sp. *bulgaricus*. Four natural stabilizers including chia seeds: *Salvia hispanica L.* (3% w/w), carrot pulp: *Daucus carota L.* (4% w/w), potato starch: *Solanum tuberosum* (1% w/w) and beet pulp: *Beta vulgaris L.* (1% w/w) were compared with authenticated control of (0.7% w/w) gelatin. Physicochemical (pH, titratable acidity (TA), colour), antioxidant, sensory and microbial properties of frozen yoghurt were determined over the storage period of 14 days at 4°C. Significantly higher ($p<0.05$) pH and lower ($p<0.05$) TA were recorded in potato starch incorporated yoghurt throughout the storage period. A decrease of colour values (L*, a*, b*) were observed in all the treatments with time. The L* values decreased significantly ($p<0.05$) for beet extracted yoghurt while photo incorporated frozen yoghurt had the lowest ($p<0.05$) a* and b* values at the end of storage. Beet incorporated yoghurt had the highest ($p<0.05$) total phenolic content (TPC) (76.46±4.23 mg GAE $100g^{-1}$) and lowest ($p<0.05$) viscosity over the storage period. The microbial analysis revealed that yeast and mould counts were below the recommended range (≤50 cfu $mL^{-1}$). Sensory evaluation confirmed that the highest colour and aroma preference were observed in beet and chia stabilizer incorporated yoghurt samples, respectively. However, frozen yoghurts with potato starch had the highest overall acceptability followed by beet, control sample, carrot and chia seed added yoghurt. In conclusion, the use of potato starch stabilizer is more effective than the other tested stabilizer types for frozen yoghurt.

***Keywords:*** Fermented products, Health benefits, Microbial counts, Physicochemical properties