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Effect of Standardizing Milk Base Using 5 Fold Ultrafiltered Cow Skim Milk Retentate on Quality Characteristics of Plain Set Yoghurt

N.M.N.K. Narayana[1*] and V.K. Gupta[2]

[1]*Department of Animal Science, Faculty of Agriculture, University of Ruhuna*

[2]*Division of Dairy Technology, National Dairy Research Institute, India.*

Abstract

Plain set yoghurts were prepared by varying milk solids levels viz. 13.5%, 13.9% and 14.3% (w/w) in the yoghurt milk base, while maintaining the fat content at 3.3% by the addition of calculated amount of 5 fold ultrafiltered cow skim milk retentate and cow milk cream, respectively. Whey syneresis was observed only in yoghurts made using milk base standardized to 13.5% milk solids and was not statistically different ($p>0.05$) between treatments. Water holding capacity (WHC) and all the textural attributes, namely, firmness, stickiness, Work of Shear (WoS) and Work of Adhesion (WoA) of yoghurts increased significantly ($p<0.05$) with increasing milk solids level in the yoghurt milk base. Flavour, acidity and overall acceptability scores of the yoghurts made from milk standardized to 13.5 and 13.9% milk solids were similar, while at 14.3% milk solids level was the lowest. Body and texture score of the yoghurt made from milk standardized to 13.9% milk solids was the highest. The optimized yoghurt (13.9% milk solids in the yoghurt milk base) was compared with conventionally made yoghurt. Whey syneresis was not observed in any of the yoghurts. Acetaldehyde concentration, WHC, textural attributes, body & texture and overall acceptability scores were significantly ($p<0.05$) higher in optimized compared to conventionally made yoghurt. Scores of other sensory attributes did not show any significant difference between 2 types of yoghurts. Use of ultrafiltered skim milk retentate is successful in manufacturing high quality yoghurt in terms of improved sensory attributes especially, body & texture and overall acceptability without the use of stabilizers.

Keywords: *Acetaldehyde, Textural attributes, Ultrafiltered retentate, Whey syneresis, Water-holding capacity.*

* *nayananarayana@yahoo.com*