

DII 09 Effect of direct ultrafiltration of milk vs. ultrafiltered retentate addition for the adjustment of total solids in yoghurt milk on quality of cow milk set yoghurt

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Effect of direct ultra filtration (UF) of cow skim milk and highly concentrated UF cow skim milk retentate addition for the adjustment of total solids (TS) in yoghurt milk on quality of yoghurt was investigated. Ultra filtered (approximately to 1.5 and 2 fold) cow skim milk/equivalent 5 fold UF retentate added cow skim milk were standardized to 3.3% fat and ~13.8% total solids. Yoghurts were prepared by inoculating with 2% yoghurt culture (*Lactobacillus delbrueckii* subsp. *bulgaricus*: *Streptococcus thermophilus* 1:1) and analyzed for chemical composition, spontaneous whey syneresis, water holding capacity (WHC), textural and sensory attributes. Protein, lactose and ash percentages of yoghurt prepared from direct UF milk were 5.27 ± 0.04 , 4.20 ± 0.03 and 0.82 ± 0.02 , whereas, in yoghurt prepared from retentate added milk were 5.18 ± 0.02 , 4.28 ± 0.03 and 0.84 ± 0.01 , respectively at 1.5 fold concentration level, which had optimum product quality. The values were not significantly different in yoghurt made by direct UF concentrated milk compared to retentate added milk. Further, it was observed that protein percentage increased and lactose content progressively decreased significantly ($p < 0.05$) in yoghurt with increased UF concentration/equivalent UF retentate addition with similar TS in yoghurt milk. Spontaneous whey syneresis, WHC, textural and sensory attributes of yoghurt were observed to be non significant with the method of adjusting TS of yoghurt milk using UF process. Hence, both procedures would be recommended to produce good quality yoghurt with enhanced protein content without addition of stabilizers.

Keywords: UF process, UF retentate, spontaneous whey syneresis, water holding capacity, textural attributes