EFFECT OF EXOPOLYSACCHARIDE PRODUCING CULTURES ON COW AND GOAT MILK PROBIOTIC SET YOGHURT

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Goat milk yoghurt has a weaker body and poor textural properties compared with cow milk yoghurt which is due to lack of α_{s1}-casein fraction. This study was conducted to evaluate the effect of exopolysaccharide (EPS) producing cultures on physicochemical, microbiological and sensory characteristics of goat milk (GM) probiotic plain set yoghurt. Probiotic yoghurts were produced with *Bifidobacterium bifidum-BB*12 and one of the high EPS producing yoghurt starters (YF-L903), medium EPS producing yoghurt starters (YC-X11) or commercial starters (STI-12). All three types of yoghurt starters were consisted of *Lactobacillus delbrueckii* subsp. *bulgaricus* and *Streptococcus thermophilus* strains. Similarly, set type plain cow milk (CM) yoghurts were prepared to compare microbiological and physicochemical quality of plain GM set yoghurts during (4°C) refrigerated storage for 28 days. pH, titratable acidity, syneresis, probiotic viability and organoleptic properties of yoghurts were evaluated during the storage period. Viscosity and EPS quantity of the prepared yoghurt were evaluated using freshly prepared samples. The high EPS producing YF-L903 led for higher viscosity in GM yoghurt (11500 ± 141 mPa. s) and CM yoghurt (40000 ± 300 mPa. s), while the lowest viscosity values were recorded for yoghurt prepared using the commercial starter culture. YF-L903 resulted the highest EPS production in CM yoghurt (177 ± 11 $mgkg^{-1}$) and GM yoghurt (118 ± 17 $mgkg^{-1}$). No significant differences ($p>0.05$) were observed in count of probiotic micro-organisms among treatments. The final cell concentrations of yoghurt bacteria and *B. bifidum* did not show a significant difference among treatments. CM yoghurt prepared using the medium EPS producing YC-X11 and GM yoghurt with high EPS producing YF-L903 were highly accepted by the consumers. The EPS producing cultures improved overall physical, organoleptic attributes and microbial properties of the goat milk set yoghurt.

Keywords: α_{s1} Casein, Exopolysaccharide, Goat milk, Storage, Viscosity