PROBIOTIC EFFECT OF INULIN INCORPORATED SET YOGHURT PREPARED USING CATTLE AND BUFFALO MILK

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Demand for probiotic food products has been increased remarkably over the last few decades. Yoghurt is one of the popular functional food enriched with probiotic activity. In this study microbiological and physicochemical properties of two set yoghurt types prepared using cow milk (CM) and buffalo milk (BM) were evaluated at 3 different levels of inulin additions (1%, 2% and 3% w/w) in refrigerated storage at 4°C for 21 days. Two types of starter cultures as BB12 (*Bifidobacterium bifidum)* and YC-X11(*Streptococcus thermophilus* and *Lactobacillus bulgaricus* subspp. *bulgaricus)* were used to prepare the set type yoghurt. Probiotic viable cell counts for all three probiotic micro-organisms, whey separation (syneresis), total acidity and pH were evaluated weekly. Organoleptic properties and viscosity were also evaluated within the first week of preparation. Both inulin incorporated CM and BM showed the higher probiotic counts at the end of the enumeration period (~8.0 log $CFUmL^{-1}$) while control samples of each group showed significantly lower (~7.0 log $CFUmL^{-1}$) probiotic counts. The highest probiotic count was recorded in 3% inulin incorporated CM and BM yoghurts from each category. *S.thermophilus, B.bifidum* and *L.bulgaricus* counts in CM yoghurts were 9.11 log $CFUmL^{-1}$, 8.90 log $CFUmL^{-1}$ and 8.96 log $CFUmL^{-1}$ respectively and in BM yoghurts those were 8.72 log $CFUmL^{-1}$, 8.67 log $CFUmL^{-1}$ and 8.73 log $CFUmL^{-1}$ respectively. Viscosity of the yoghurt samples were significantly different ($p<0.05$) among the treatments while the highest viscosity was observed in 2% inulin incorporated yoghurt (CM: 55850 ± 70.71 mPa.s; BM: 86450 ± 70.73 mPa.s). The CM and BM yoghurt containing 2% inulin showed the higher consumer acceptability and probiotic stability during the storage. This study showed that the addition of inulin can improve microbiological, sensory and viscosity of yoghurt prepared from CM and BM.

Keywords: Buffalo milk, Cow milk, Inulin, Probiotic, Set yoghurt