

4th International Conference and Exhibition on **Probiotics, Functional and Baby Foods** November 03-05, 2015 Valencia, Spain

Determination of probiotic potential of *Lactobacillus* strains

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Viability and survive of *Lactobacillus* strains under acidic environment are the most important criteria for selection as probiotic. Seven *Lactobacillus* strains isolated from cow's colostrum were tested for viability and resistance to acidity. This viability of *Lactobacillus* were examined at 0, 7, 14 and 21 days when the counts were variable, ranging between 5-6.5 log cfu/ml. Specific growth rate (μ) and generation time of *Lactobacillus* strains were determined. Acid tolerance was determined by introducing the strains of *Lactobacillus* in skimmed milk at pH=4.3 and enumerating during storage at 4°C. All strains showed ability to resist under SGF and bile salt but *L. rhamnosus* MB5516 are more resistance and showed superior survival abilities and resistance to acidity than others strains. Our result suggests that strains resistant to acidity seem to be suitable for food and biotechnological industry.

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Antioxidant, anti-hypertensive and hypocholesterolemic properties of symbiotic yogurt containing pomegranate polyphenols

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The impact of pomegranate polyphenols on the antioxidant and anti-hypertensive activities and hypocholesterolemic properties of symbiotic yogurt was investigated. The experimental yogurts were made with 14% reconstituted skim milk (RSM) supplemented with 2% of four different prebiotics (fructo-oligosaccharide, fructo-oligosaccharide enriched inulin (FEI), sorbitol and mannitol), inoculated with *Streptococcus thermophilus* 1275, *Lactobacillus bulgaricus* 1842, *Lactobacillus rhamnosus* 1520 and *Lactobacillus acidophilus* 2404 at a ratio of 1:0.5:1:1 incubated at 42° C for 4 hours and stored at 4° C for 21 days. The symbiotic yoghurt supplemented with FEI demonstrated the maximum probiotic survival (9.8 Log₁₀ CFU/g) during storage and was chosen for further studies. The RSM containing FEI was mixed with different levels of pomegranate juice concentrate (PJC) (0, 10, 12.5, 15 and 20% (v/v)) and turned into yogurt as above. The symbiotic yogurt containing 20% (v/v) PJC showed increased antioxidant activity by 95%, total phenolic compound (TPC) level by 72%, proteolytic activity (OPA) by 70%, antihypertensive activity by 75% and over 90% viability of probiotic cultures in comparison with the control (0% (v/v) PJC) after 21 days storage at 4° C. Addition of 20% (v/v) PJC slightly improved the hypocholesterolemic properties of the symbiotic yogurt by 25% compared to the control. Preliminary sensory evaluation results showed PJC supplementation had no adverse effect on sensory attributes and yogurt quality. This study proved the feasibility of supplementation of symbiotic yogurt with PJC up to 20% thus further improving the health functionality of yogurt. This product is currently undergoing further in vivo studied in our human feeding trials.

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