

POTENTIAL OF REPLACING HOMOGENIZATION PROCESS OF PROBIOTIC YOGHURT PRODUCTION USING CITRUS FIBER

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Consumption of probiotic yoghurts has been considered as an important contributor for maintaining good health among people. The objective of this study was to determine the potential of replacing homogenization step in the yoghurt manufacturing process by using citrus fiber. The treatments were homogenized yoghurt (20 MPa for 20 min in 55°C), un-homogenized yoghurt and yoghurt prepared by adding citrus fiber in three different levels: 0.1%, 0.2%, and 0.3% (w/v). All probiotic yoghurt samples were prepared using fresh cow milk having 3.5% fat content with thermophillic yoghurt starter cultures and probiotic *Bifidobacterium bifidum* BB₁₂. Samples were stored at 4°C for 28 days and physicochemical and microbiological properties were evaluated at weekly intervals. Sensory evaluation was conducted using one day old produce. Freeze dried yoghurt samples were evaluated using scanning electron micrographs. Parametric data were statistically analyzed using SAS and mean separation was done by Tukey's test. The organoleptic data were analyzed by Friedman test using MINITAB. Addition of all levels of citrus fiber resulted lower tritrable acidity and syneresis in yoghurts compared to yoghurts without citrus fiber. When compared three levels of citrus fiber added yoghurts with yoghurts without citrus fiber, there was no effect of addition of citrus fiber on the texture of yoghurts. Analysis of scanning electron micrographs revealed that incorporation of citrus fiber results yoghurt with a porous structure compared to yoghurts without citrus fiber. Sensory data revealed that incorporation of citrus fiber at the rate of 0.2% w/v leads for higher rank of mouth feel and odour. The highest acceptability for top cream layer was recorded with homogenized yoghurt followed by yoghurt containing 0.2% citrus fiber. This study concluded that incorporation of citrus fiber at the concentration of 0.2% (w/v) has a potential to replace the homogenization step used in conventional set yoghurt manufacturing process.

Keywords: Citrus fiber, Homogenization, Set yoghurt