Potential Gelatin Replacement in Set-Yoghurt: Use of Exopolysaccharide-Producing YoFlex® Premium 6.0 Starter Culture

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Microbial exopolysaccharides (EPS) are in increasing demand as a natural stabiliser in yoghurt making and could replace or reduce the use of gelatin for many reasons. The present study investigated the potential for gelatin replacement in set-yoghurt using an exopolysaccharide-producing YoFlex® Premium 6.0 starter culture (CHR HANSEN, Horsholm, Denmark). This experiment was carried out for three different fat levels (0.4%, 1.5%, and 3.0%). Each fat level contained one control sample (with 0.5% gelatin and conventional culture). Altogether eighteen treatments were prepared using YoFlex® Premium 6.0 starter culture and six different gelatin levels (0.0%, 0.1%, 0.2%, 0.3%, 0.4%, 0.5%) for three fat levels. Out of the eighteen treatments, the five best treatments (P6-A, P5-A, P4-A, P2-A, P1-A) were identified based on the texture and syneresis data for further evaluation. All those selected five treatments were included in the 0.4% fat level, and then they were subjected to sensory, texture, titratable acidity, and viscosity analyses to investigate the potential for gelatin replacement. The highest ($P<0.05$) hardness and overall acceptability were observed in the treatment with 0.5% gelatin level. However, the highest ($P<0.05$) titratable acidity and viscosity values were observed in the treatment with 0.0% gelatin level. Therefore, this study concluded that YoFlex® Premium 6.0 starter culture has good potential to replace gelatin in the set-yoghurt with 0.4% fat level and concluded that gelatin can be replaced completely in the set-yoghurt with desirable titratable acidity and viscosity attributes. However, desirable sensory and texture attributes can be obtained in set-yoghurt produced by YoFlex® Premium 6.0 starter culture with 0.5% gelatin level. It is revealed that, in the Sri Lankan context, YoFlex® Premium 6.0 starter culture may be best suited for stirred-yoghurt rather than set-yoghurt preparation.

Keywords: Exopolysaccharide, Gelatin, Syneresis, Texture, YoFlex® Premium 6.0 starter culture

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