

UTILIZATION OF XYLO-OLIGOSACCHARIDES AS PREBIOTICS IN YOGHURT

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Abstract

Xylo-oligosaccharides (XOS) consist of 2-14 xylose monomers and are prebiotics and non-digestible oligosaccharides. However, XOS is used as dietary supplement in China and Japan, little known of its possible utilization in food products. Aim of study was to evaluate the potential and limitation of XOS addition to drinking-yoghurt, how these oligo-saccharides affect the technological properties, sensorial quality and storage stability of yoghurts.

The XOS were added at 1, 3 and 5% into yoghurt, in two formats: powder (70P - which contains 70% XOS) and liquid (70L - which contains 70% XOS). The number of germs were determined using selective media. Rheological properties were tested by rotational method measuring the flow curve and fitting the Herschel-Bulkley model. During the sensory evaluation, parameters were ranked by trained panelist.

It was concluded that the fermentation time of the yoghurts did not change significantly because of XOS addition. In the syneresis examination, the bark curing was typically 6 mL/100 mL yoghurt. The number of germs in each sample reached the order of 10⁷ colony forming unit and, the number of microorganisms did not change significantly with the addition of XOS. Flow curve of each yoghurt showed shear-thinning behavior. Addition of 70 P did not affect the viscosity of the yogurt. In the case of 70L a significant decrease can be observed between 3 and 5% XOS concentrations. Based on sensory analysis the color, flavor and odor were not altered by XOS, however, adding a certain amount of XOS (3 and 5%) the yogurt flavor became more intense. On the basis of sensory analysis, the 70L- 5% formulation proved to be the best.

Overall, it can be stated that the XOS could be used in natural yogurts without any detrimental effect. Although sensory analysis of the 70L formulation containing 5% XOS was the most preferred, since 3% concentration was most appropriate for syneresis and viscosity, so it is advisable to use it in such quantities.

Key words: XOS, Prebiotics, Yoghurt, Rheology.