PHYSICOCHEMICAL PROPERTIES OF FERMENTED SOYMILK WITH ADDITION OF XANTHAN GUM

<u>Asase R.V.</u>¹, Selezneva I.S.¹, Glukhareva T.V.¹ ¹⁾ Institute of Chemical Engineering, Ural Federal University, Ekaterinburg, Russia. E-mail: richardasase@gmail.com

The abstract describes the physicochemical and sensory properties of fermented soymilk as affected by the addition of commercial xanthan gum. Specifically, the laboratory production of soymilk and effect of the addition different concentration of commercial xanthan gum on the fermented soymilk.

Fermented soymilk is a plant-based non-dairy product of great nutritional interest that is widely accepted in both developed and developing countries as a milk alternative. Poor stability has been an urgent problem to solve of the fermented soymilk products over past several years. Therefore, there is the need to fortify this product with stabilizing agents such as xanthan gum [1]. It is known that xanthan gum has the ability to form emulsions including gel formation to improve texture and stability in food formulations [2]. Soymilk has been prepared in the laboratory (1:10 w/v) and different concentrations (0.05%, 0.10%, 0.15%, and 0.20%) has been added to soymilk samples.

Fermented soymilk was prepared using starter culture (Streptococcus thermophilus and Lactobacillus bulgaricus). Results from the study show that, xanthan gum in different concentration does not affect the titratable acidity (1.84 % for all samples) and the pH (4.70 for all samples) of the fermented soymilk. However, it was found that, the addition of xanthan gum in an amount of up to 0.1% makes it possible to obtain fermented soymilk with a more stable gel. This result is in consistent with data of Raikos et al (2020) who also observe that, gels have the ability to improve on the physicochemical properties of fermented plant-based milk by increasing water holding capacity and decreasing syneresis [3]. This is due to the cross-linked between polysaccharides and protein molecule formed denser and aggregated networks allowing composite gel to intercept water. The sample with 0.1% xanthan gum exhibited the best organoleptic property.

In conclusion, the study suggests that the inclusion of xanthan gum up to 0.1% in fermented soymilk is capable of improving the physicochemical and organoleptic properties of the product making it more acceptable by consumers.

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