Evidence Based Prebiotic Effect of Jellies Enriched with Oligosaccharides Obtained from Orange Peels

Iahtisham-Ul-Haq, Jawaria Zafar
Kauser Abdulla Malik School of Life Sciences, Forman Christian College (A Chartered University), Lahore, Punjab, Pakistan.
*E-mail: iahtisham@hotmail.com

ABSTRACT

Introduction: Value addition is becoming increasingly important based on changing market trends and lifestyles. The limited number of prebiotic-enriched products are available in Pakistan. The market trend is focusing on finding out the novel way to produce value added products based on demand of health-conscious people.

Methodology: The objective of this study was to extract the prebiotic from orange peels and development of prebiotic-enriched jellies and physicochemical and microbial evaluation of the prepared product. Jellies consisting of various concentrations of prebiotic i.e., 1-5g/100g were prepared and analyzed for physicochemical analyses fortnightly during storage (60 days). Physicochemical parameters including weight, pH, Titratable acidity, Brix, reducing and non-reducing sugars, color, antioxidants were assessed using their respective protocols. Microbiological analyses for both prebiotic and jelly were also performed.

Results: Based on parameters, the treatments showed significant decrease in pH and total sugars. While there was significant increase in acidity, antioxidants, and color. Among the treatments, jellies with 4 & 5g/100g prebiotic were most acceptable with respect to quality indices on the basis of physicochemical, antioxidant parameters and microbial analyses. The prebiotic activity for the oligosaccharides showed that it improves the growth of probiotics whereas, lowers the growth of pathogenic bacterial strain i.e. *E. coli*.

Conclusion: Overall, citrus jellies containing 4g/100g prebiotic stood to be the best for commercially viable option.

Keywords: Prebiotics, Oligosaccharides, Orange, Jellies, Probiotics