

## ABSTRACT

Micronutrient deficiency is a major concern as it affects 50% of pregnant women in the world. Introduction to food fortification as the nutritional intervention program may aid in the prevention of micronutrient deficiencies, yet to accomplish the program's goals, the amount of nutrients fortified in the product must be sufficient and fulfilling. However, exposure to a variety of environmental conditions throughout storage may lose chemical and physical properties, leading to a change in the food's properties and nutrition. This study aimed to analyze the effect of different storage temperatures on the stability of micronutrients, physicochemical properties, and the shelf life estimation of fortified cookies. The fortified cookies were subjected to different storage temperatures of 30, 37, and 45°C for 1 month with all analyses done before and after; while shelf life was carried out every 6 days. The study showed that different storage temperatures significantly decreased the texture up to  $156 \pm 42.33$  g, which coincided with a significantly increased up to  $5.57 \pm 0.10$  % and  $0.62 \pm 0.03$  in the moisture content and water activity, respectively. A slight fluctuation happened owing to crystalline sugar on the cookie surface. Iron results with 90-96% retentions presented that it did not appear to be influenced significantly by the storage temperatures due to its characteristics that have high stability. Moreover, through the Arrhenius equation, the estimated shelf life of fortified cookies stored at storage temperatures of 30, 37, and 45°C was 26 days, 12 days, and 6 days, respectively.

Keywords: *Micronutrient retentions, ASLT, Fortified cookies, Food fortification, Micronutrients deficiency*