

Abstract

Foxtail millet is a nutritious gluten free (GF) millet with potential applications in GF bakery products. However, the absence of gluten often results in poor bread quality which requires the use of hydrocolloids to improve texture and consumer acceptability. This study formulated foxtail millet gluten free bread (GFB) using different types of hydrocolloids which are Hydroxypropyl methylcellulose (HPMC) and Xanthan Gum (XG) at concentrations of 1% and 2%. This study aimed to evaluate the effects of hydrocolloid type and concentration on the physicochemical and sensory properties of foxtail millet based GFB. From this study, it was found that the hydrocolloids and the concentration had no significant effect on the moisture content (MC), water activity (A_w), and bread specific volume (BSV). However, hydrocolloid type and concentration significantly affected baking loss, crust and crumb color, texture, and sensory properties of the foxtail millet GFB. For the texture, the addition of XG resulted in lower hardness with the range of 220 - 290.67 N, while HPMC formulations exhibited high hardness value compared to control with the range of 342.33 - 452.33 N. Overall, both XG formulations received higher scoring across most sensory attributes based on the hedonic test, while the HPMC formulations scored the lowest due to dry and crumbly texture, grainy mouthfeel, and unpleasant aftertaste. Overall, the incorporation of XG improved the quality and acceptability of foxtail millet GFB which highlights the potential of foxtail millet flour as an alternative ingredient for GFB development

Keyword: *Foxtail Millet, Gluten free bread, HPMC, Hydrocolloids, Xanthan Gum*