

Abstract

Mountaineering is a sport that has grown in popularity in Indonesia. Mountaineers exert high physical and mental effort; thus, their bodies require adequate nutrition to prevent complications such as injury. Snacking has become an integral habit to supplement additional nutrients, with priority for snacks that are dense in nutrients, lightweight, good-tasting, and filling. Highly processed snacks caused concerns about food additive intake, providing opportunities to develop new snacks. Formulation trials were performed utilizing data from primary market research involving 44 mountaineers. Following that, pear fruit leathers were proposed as the newly developed snack with chia seeds as the independent variable in 26:1 (F1), 10.5:1 (F2), and 6:1 (F3) ratios. Proximate analysis was done for carbohydrate, protein, fat, ash, and moisture, and statistically analyzed using One-way ANOVA. Furthermore, it was unknown how chia seeds may affect the hygroscopicity rate of fruit leathers, which is an existing concern due to fruit leathers being rich in low molecular weight compounds. Hygroscopicity rate was measured for six hours in 75% RH and 25°C, then analyzed using repeated measures ANOVA. Ash in F3 was significantly different ($1.622 \pm 0.066\%$). Otherwise, no significant differences were found. F2 contained more fiber ($11.940 \pm 0.170\%$) than the control ($6.285 \pm 0.120\%$); both can be useful to improve satiety. Therefore, it is possible to utilize chia seeds to improve the functional value of snacks for mountaineering. Further research is required to assess the snack's viability in true mountainous environments.

Keywords: *chia seeds, fruit leather, hygroscopicity, mountaineering, proximate*