

335483 Food Technology Project

Development of tortilla chips from okara fermented with tempeh starter culture

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Abstract

These days, it was found that people have insufficient fiber consumption, for example, in the adolescent group (90.6%), adults (89.6%), and the elderly (83.9%) who consume less than 30 grams of fiber per day in a sample group from Slovenia. This is primarily due to the lack of consistent consumption of vegetables and fruits, especially among the elderly. The objective of this study was to assess whether tortilla chips made from okara can serve as a new source of 25% of the Thai Recommended Daily Intake (Thai RDI) for fiber, which is 6.25 grams per unit of consumption. Furthermore, the study aimed to ensure fat contains less than 20% Thai RDI and that consumers can derive benefits from probiotics within the accepted range of consumer preferences. To achieve this, this study will investigate the effects of incorporating 0%, 20%, 40%, and 60% of okara in the total weight of the tortilla chips. The fermentation process for fermented okara uses 24-hour fermentation period. After fermentation, the product was shaped, trimmed, and subjected to baking at 240°C for 1 minute, followed by frying at 190°C for 1.30 minutes. The chemical properties showed that protein and fiber content increased while moisture and carbohydrates decreased when more addition of okara was added. The physical properties indicated that tortilla chip products had a darker color and lower hardness compared to the control sample. The most accepted treatment in this study was 40% fermented okara added treatment that provided the highest overall acceptability, 198.33 kcal of energy, 12.36% Thai RDI of fat content, and 29.56% Thai RDI of fiber with a statistically significant ($P \leq 0.05$) compared to the reference product. Therefore, tortilla chips made from fermented okara have a high fiber, and low-fat content compared to the reference product in the market.

Keyword: Tortilla Chip; Okara; Functional food; Rhizopus oligosporus; Probiotic

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