

Development Of Chickpea And Buckwheat Supplemented Cookies: A Step Towards Gluten Free Diet

Anwaar Ahmed¹

Rai Muhammad Amir¹ and Mark Richards²

¹ Institute of Food and Nutritional Sciences, PMAS-Arid Agriculture University, Rawalpindi, Pakistan

² NSW DPI

Gluten intolerance is affecting a number of people and its prevalence is estimated about 1% of the world's population. Buckwheat is one of the most valuable pseudo-cereals for its nutritional composition, and it is suitable for such patients because of its gluten-free characteristic. However, gluten is the main structure-forming protein responsible for the development of structure in baked products. Therefore, it is a challenge to produce high-quality gluten-free products. The aim of this research was to characterize gluten-free cookies formulated with supplementation of buckwheat, chickpea and rice flour in various proportions along with food additives like antioxidants and gums and its relationship with final product quality. The cookies were analyzed for chemical (protein, fat, fiber, ash, vitamins, minerals, antioxidants and phenolic compounds), physical (width, thickness, spread factor) and sensory (color, taste, flavor, texture) properties during storage at 15 days interval for two months. Quality evaluation manifested that spread ratio, protein, crude fiber, ash content, b* value and hardness was significantly ($p < 0.05$) affected by flour combinations. On the other hand, lipids were a major cause for both desirable and undesirable flavors in cookies. The use of antioxidants and gums were found to be most effective in addressing these problems. Biological evaluation of cookies showed nutritional improvement. A significant increase was observed in weight gain, feed intake, protein efficiency ratio, true digestibility, net protein utilization and biological value as compared to the control. At the end of the study it was postulated that use of buckwheat and chickpea flour in the formulation of cookies can turn it into a nutrient rich functional food which can be recommended to the patients of celiac disease.