

## Development of Low Glycemic Gluten Free Bread from Barnyard Millet and Lentil Flour

**Authors :** Hemalatha Ganapathyswamy, Thirukkumar Subramani

**Abstract :** Celiac disease is an autoimmune response to dietary wheat gluten. Gluten is the main structure forming protein in bread and hence developing gluten-free bread is a technological challenge. The study aims at using nonwheat flours like barnyard millet and lentil flour to replace wheat in bread formulations. Other characteristics of these grains, such as high protein, soluble fiber, mineral content and bioactive components make them attractive alternatives to traditional gluten-free ingredients in the production of high protein, gluten-free bread. The composite flour formulations for the development of gluten-free bread were optimized using lentil flour (50 to 70 g), barnyard millet flour (0 to 30 g) and corn flour (0 to 30 g) by means of response surface methodology with various independent variables for physical, sensorial and nutritional characteristics. The optimized composite flour which had a desirability value of 0.517, included lentil flour -62.94 g, barnyard millet flour- 24.34 g and corn flour- 12.72 g with overall acceptability score 8.00/9.00. The optimized gluten-free bread formulation had high protein (14.99g/100g) and fiber (1.95g/100g) content. The glycemic index of the gluten-free bread was 54.58 rendering it as low glycemic which enhances the functional benefit of the gluten-free bread. Since the standardised gluten-free bread from barnyard millet and lentil flour are high protein, and gluten-free with low glycemic index, the product would serve as an ideal therapeutic food in the management of both celiac disease and diabetes mellitus with better nutritional value.

**Keywords :** gluten free bread, lentil, low glycemic index, response surface methodology

**Conference Title :** ICFSN 2018 : International Conference on Food Science and Nutrition

**Conference Location :** London, United Kingdom

**Conference Dates :** June 28-29, 2018