

Utilization of hydrocolloids to prepare rice and pulse based gluten-free bread to alleviate coeliac disease

Nisha Chaudhary and Rajendra Singh

Centre of Food Science & Technology, CCS Haryana Agricultural University, India

Coeliac disease is an under-diagnosed autoimmune type of gastrointestinal disorder resulting from gluten ingestion in genetically susceptible individuals. Patients with wheat or gluten allergies, hypertension, nephritis, or digestive difficulties could benefit if good-quality breads from non-gluten cereals were made available. Also it would provide a choice in their diets.

The present investigation was carried out to prepare and standardize rice and pulses based breads and assess its shelf life. A blend of short grain and medium grain rice were used with black gram, green gram and bengal gram in the proportion of 20, 30 and 40 parts with 80, 70 and 60 of parts rice flour, respectively. Rice and pulses are devoid of gluten which helps to strengthen the typical texture of bread, therefore some additives like Hydroxy Propyl Methyl Cellulose (HPMC), guar gum, pectin and different water levels are used to make breads and analyzed for the fulfillment of the purpose. Consecutively, the textural and sensory scores showed that HPMC (3parts) and 75 parts water were best among additives and water levels tested

Increased amount of pulses in breads resulted in decreased sensory scores due to typical flavor of pulses in breads, so overall acceptability of the breads with least amount of pulses was highest. The specific volume of the breads increased with increased amount of pulses and firmness. It was may be because of increasing proportion of proteins in pulses. Nutritive value of the pulses supplement rice breads was higher than that of refined flour. Percentage of protein and minerals was more in rice and pulses based bread. In addition the digestibility of the rice protein is reported to be higher than refined wheat flour protein and pulses complement the essential amino acid profiles of cereals which will make these breads more nutritious.

Biography

Nisha Chaudhary is a Home Science graduate with specialization in Foods and Nutrition. She is postgraduated in Food Science and Technology from Chaudhary Charan Singh Haryana Agricultural University, Hisar, Haryana and currently pursuing Ph.D from Guru Jambheshwar University of Science & Technology, Hisar, Haryana. She has about 3 years of teaching experience as teaching associate at GJUS&T.

chaudharynisha3@gmail.com