

3rd International Conference on FOOD AND NUTRITION

February 09-10, 2022 | Webinar

Processing of quinoa for germ extraction and its application in development of germ enriched pasta

Amrita Ray¹, Alok Kumar Srivastava¹, Suresh D Sakhare²

¹Food Safety & Analytical Quality Control Laboratory

²Flour Milling, CSIR - Central Food Technological Research Institute, Mysore

Quinoa, a pseudo-cereal, is popular for its nutritional value. A good amino acid balance and presence of unsaturated fatty acids make this grain beneficial for human health. The nutrient content of quinoa grain is reported to be unevenly distributed in the various seed components like perisperm, germ etc. Fractionation will facilitate separation of nutrient dense components for their effective utilization. Physical fractionation method has a number of benefits over conventional wet milling; the present study is aimed at dry fractionation of quinoa seed components using roller milling process to separate different botanical components of grains with higher recovery and purity. Quinoa grain was pre-processed by water conditioning and conditioned grain samples were roller milled in laboratory mill, which has resulted into the production of fractions viz., bran, perisperm and germ. The milled fractions obtained at different moisture conditioning were evaluated for their yield and physicochemical properties by using standard AACC and AOAC methods. Developed process resulted into germ extraction of 23% containing higher amount of protein (36.47%), fat (21.30%), ash (4.81%) and dietary fiber (14.13%). Quinoa germ obtained was stabilized by heat treatment before utilizing in development of pasta. Durum semolina and quinoa germ blends were prepared and evaluated for the physical, nutritional and rheological properties. Nutritive value of the blends was found to be increasing with increased amount of quinoa germ substitution in durum semolina. The L* (lightness) values of pasta recorded a decrease in trend with an increase in the level of quinoa germ in the durum semolina. These results showed that the pasta became dull in color than the control pasta by the supplementation of quinoa germ. The rheological study showed a significant influence on the blends. The pasta was prepared by the laboratory extrusion method and evaluated for quality parameters. The cooking loss decreased and cooking time increased with increased addition of quinoa germ to pasta. The sensory evaluation showed that pasta with 20% substitution of quinoa germ had an acceptable score and above which the pasta became inferior in quality. The developed pasta showed an increase in protein, oil, dietary fiber and mineral content compared to control pasta.

Biography

Amrita Ray has completed her Masters of Science from University of Calcutta, a 164 years old establishment recognised as "University with potential for excellence" by Govt. of India body. She has a national fellowship awarded by University Grants Commission, Ministry of Education and pursuing her PhD from a premier research institute, Central Food Technological Research Institute, a constituent laboratory of the Council of Scientific & Industrial Research, Govt. of India. She is at the last lap of her PhD program and would be submitting thesis soon. She has various published articles and awards to her credit during her career in this field.