

Effect of Gamma Irradiation on the Physicochemical Properties of Starches Extracted from Newly Released Rice Varieties Grown in North Temperate Regions of India

Authors : Bilal Ahmad Ashwar, Asima Shah, S. A. Rather, Asir Gani, S.M. Wani, I.D. Wani, F. A. Masoodi, Adil Gani

Abstract : Starches isolated from two newly released rice varieties (K-322 & K-448) were subject to irradiation at 0, 5, 10, and 20 kGy doses. Comparative study between native (not irradiated) and irradiated starch samples was carried out to evaluate the changes in physicochemical, morphological and pasting properties due to gamma irradiation. Significant decrease was found in apparent amylose content, pH, swelling power, syneresis, and pasting properties, whereas carboxyl content, water absorption capacity, transmittance and solubility were found to increase with the increase in irradiation dose. Granule morphology of native and irradiated starches under scanning electron microscope revealed that granules were polygonal or irregular in shape. The starch granules were somewhat deformed by gamma irradiation. X-ray diffraction pattern showed A type of pattern in native as well as irradiated starches.

Keywords : rice starch, gamma irradiation, morphological properties, pasting properties, physicochemical properties.

Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development

Conference Location : Chicago, United States

Conference Dates : December 12-13, 2020