

13th Euro Obesity and Endocrinology Congress

and

16th World Congress on Nutrition and Food Chemistry

September 18-20, 2017 | Zurich, Switzerland

Radiography as a perspective method of quality control of rice seed

Paiziev A A¹, Krakhmalev V A¹ and Berkinov A²

¹NewMax Technology Company, Uzbekistan

²Rice Institute under Ministry Agriculture Republic of Uzbekistan, Uzbekistan

Rice is the most popular grain globally and the primary dietary staple for more than half the world's population. This tiny but mighty grain is nutrient-rich, supplying energy, complex carbohydrates, protein, fiber, beneficial antioxidants and more than 15 vitamins and minerals. At present time a considerable part of rice harvest is still lost postharvest chains (cleaning, drying, saving, transporting, presowing processing). In addition, consumers have not accessible technology to estimate rice quality. The nondestructive X-ray method to monitor and evaluate rice quality enables to image such internal defects as micro cracks of a germ and peel of seed, infection of a nucleus by wreckers, dormancy seeds etc. In present work we offer the radiographic X-Ray method to evaluate rice quality parameters. Two rice variety "Avangard" and "Lazurniy" grew under local conditions Tashkent valley has been used. It was established, that to get contrast images of rice grains need to use radiation from X-ray tube with voltage 15-20 kV, a filament current 12mA, distance between a focal point of a X-ray tube and rice sample 50mm, time of X-ray exposition 60 sec. The doze of X-rays exposition does not influence viability and germinating power of seeds and also on further it development. In a basis of an evaluation of quality of rice seeds we took a degree of development of a germ. It is shown, that the most reliable outcomes the X-ray method gives for case testing of fresh rice grains. A remarkable property of X-rays is that it allow without opening of rice seed cover to determine damage of germ, wreckers presenting, cracks, empty and inferior rice grains which arise during incorrect storage, transportation and drying. Also is detected sensitivity of a X-radiation to violations of an internal structure of a germ. These violations are exhibited on radiograph in irregular blacking of an image of a fabric of a nucleus and emerging in volume of a germ of shadows of a different configuration and intensity. On the basis of presented results the recommendation for improvement of technology of post harvesting and storage of rice seed made.

adkhampaiziev@gmail.com