Title The effects of high-temperature drying on fragrant rice.

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Abstract

The effects of high temperature drying on fragrant rice cv. Kyeema were studied. High moisture paddy was dried using two-stage drying process which involved a fluidized bed at high temperature reducing moisture content to 18% wet basis (w.b.), followed by shade drying with a further moisture reduction of 14% w.b. Drying air temperatures of 150, 125 and 100 deg C were trialled in the fluidized-bed drier. Likens-Nickerson simultaneous distillation-extraction technique was used to extract the volatile compounds from grains, and gas chromatography-mass spectrometry and gas chromatography were used to separate, identify, and quantify the volatile compounds extracted. Sixty-one volatile compounds were identified. These included 12 alcohols, 10 aldehydes, 9 ketones, 9 acids, 7 hydrocarbons, 3 heterocyclic and 8 miscellaneous compounds. An increase in drying temperatures led to the formation of new compounds, as well as losing other desirable volatiles. Quantitatively, aldehydes were the major class of volatile compounds found in Kyeema rice samples. The three different drying temperatures using the fluidized bed drier affected the flavour profile of Kyeema rice. The sensory results also showed that rice dried at 125 deg C had the most desirable flavour, which may be due to the presence of the newly formed volatile compounds identified in the rice sample.