Partial Characterization of Rice (*Oryza sativa* L.) cv. Khao Dawk Mali 105 as Affected by Accelerated-Aging Factors

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ABSTRACT

This study concerns the effect of accelerated-aging treatments on pasting properties, textural properties, solid loss, amylose content, cooked kernel elongation, color and the quantities of the key off-odor, n-hexanal, and the aroma-impact compound, 2-acetyl-1-pyrroline, of Thai Jasmine rice. Milled rice samples derived from freshly-harvested paddy with moisture contents of 13.4 and 16.6 percent wet basis were exposed to three designed sets of accelerated-aging conditions: 100°C for 60, 90 and 120 minutes, 110°C for 30 and 45 minutes, and 120°C for 15 and 30 minutes. Comparison between treated, untreated and naturally-aged samples revealed that accelerated-aging treatments enhanced the aging process of fresh rice samples, with the effect being significant in high-moisture-content rice and in higher temperature or longer exposure treated rice. The hardness and springiness of accelerated-aged cooked rice increased but its adhesiveness decreased. The accelerated-aged rice showed lower solid loss, higher yellowness, higher kernel elongation and pasting behavior similar to those of naturally-aged rice, though amylose content remained unchanged. The content of 2-acetyl-1-pyrroline and n-hexanal decreased in accelerated-aged rice, however, these were still higher than those of 6- to 12-month naturally-aged samples. The accelerated-aging technique designed in this study can be utilized for aging enhancement of Thai fragrant rice.

Key words: Aromatic rice, Accelerated aging, Physicochemical property, 2-acetyl-1-pyrroline, n-hexanal