Title   Prediction of long-grain rice texture from pasting properties

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Abstract

There is much research devoted to studying the functionality of rice as affected by pre- and post-harvest variables. Rapid Visco-Analysis (RVA) is the accepted method for assessing rice flour pasting properties. Rice texture, on the other hand, is more difficult to assess because a standard method has not yet been adopted by the research community. The objective of this study was to determine if a correlation existed between RVA and instrumental texture measurements. Rice samples used in this study were from two long-grain cultivars (Cocodrie and Wells) harvested in 7 different locations across AR, LA, MS, an TX. In each field, rice was harvested from 6-8 locations. A total of 100 rice samples were collected and analyzed for pasting properties using a Rapid Visco-Analyzer and texture properties with a compression test on ten cooked rice kernels using a Texture Analyzer (TA-XT2i, Texture Technologies Corp., Scarsdale, NY). RVA parameters and RVA profiles were used for predicting instrumental hardness and stickiness of cooked rice. Peak and final viscosity ranged from 126 to 229 RVU and from 158 to 267 RVU, respectively. The hardness of cooked rice ranged from 7805 to 10750 g, whil stickiness ranged from 123 to 478 g.s. Cooked rice hardness and stickiness were rather well predicted by RVA profiles (R_{cal} = 0.80 and 0.77, respectively). However, RVA parameters such as peak, final or setback viscosities did not show significant correlations with instrumental hardness and stickiness measurements. These results suggest that pasting properties of rice may be adequate for predicting rice texture. However, further testing should be performed with a sensory method as the reference method for assessing cooked rice texture.