Title Relationships between physical properties of brown rice and degree of milling and loss of selenium

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Abstract

This study has investigated the relationships between physical properties (length, width, thickness, aspect ratio, equivalent diameter, sphericity, surface area, volume, bulk density, true density, porosity and thousand seed weight) and degree of milling (DOM) and loss of selenium (Se) in 10 brown rice cultivars during milling process. Most of the physical properties varied very significantly ($P < 0.01$) with different cultivars except true density and porosity. They also significantly affected DOM and the loss of Se during the milling process ranging from 0 to 100 s. Among the physical properties investigated, grain length, aspect ratio and porosity played a very significant role in controlling DOM and the loss of Se. A linear relationship was further observed between DOM and the loss of Se ($R^2 = 0.899$, $P < 0.01$).