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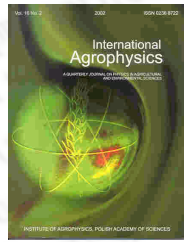
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Size and shape of potato tubers

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abstract Potatoes are little known products of Iran; yet they are comparable in size, shape, and substance to any other potato in the world. They are, moreover, considerably cheaper than those grown in the Western Europe, North America, and Australasia. In this study, physical properties of four common varieties of Iranian grown potatoes were determined. These physical properties included physical dimensions, mass, volume, geometric mean diameter, sphericity, aspect ratio, $a/b+c$, and projected areas. The aforementioned parameters were obtained from individual varieties of potatoes as well as a mixture of varieties. In this study, relationships among these physical attributes were determined and a high correlation was found between volume and the diameters of mixed potatoes with a coefficient of determination, $R^2 = 0.98$, as shown in the equation $\ln V = 1.2 \ln a + 0.94 \ln b + 0.86 \ln c - 7.28$. Mass and volume of the mixed potatoes had a very high coefficient of determination, $R^2 = 0.994$, as shown in the equation: $M = 0.93V - 0.6$. A coefficient of determination, R^2 , between an average projected areas (criterion area, A_c) and the measured volume of potatoes was very high, close to one and a nonlinear regression equation for the mixed varieties of potatoes was determined as: $A_c = 1.1V - 0.71$ with $R^2 = 0.993$. This trend follows the same trend as shown in Mohsenin. However, a linear regression had a very high correlation, too. The shape of an Iranian potato is ellipsoidal.

keywords physical properties, potato, variety, projected area

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