Physical properties of peganum harmala related to harvesting and processing

J. KHAZAEI, Maryam HATAMI - University Of Tehran, Iran

The specific objective of this study was to determine some physical properties of Peganum harmala seeds and capsules such as linear dimensions, bulk and true densities, static coefficient of friction, angle of repose, sphericity, geometric mean diameter, volume, and surface area.
Experiments were conducted in the moisture range of 4.8–20% (w.b.). At the moisture content of 4.8% (w.b.) the length, width, and thicknes of the seeds were found to be 2.99 mm, 1.42mm and 1.03 mm, respectively.
Corresponding values for the capsules have been also reported. Moisture content had a significant effect on bulk density, true density and friction coefficient. 1000 seed mass, 1000 capsule mass, friction coefficient, and porosity were significantly increased with moisture content within the experimental testing range (4.8–20% w.b.).
Moisture content had a decreasing effect on true and bulk densities. The true density decreases nonlinearly from 1250 to 909 kg/mm3 as the seed moisture content increases from 4.8% to 20%.
The bulk density of peganum harmala seeds at different moisture levels and falling height of the seed on the container, varied from 428 to 650 kg/m3 . Angle of repose of the peganum harmala seeds at 4.8% moisture content on galvanized steel surfaces was 18.2o.