



## Effect of moisture content on density and porosity of two varieties of chickpea grains and stalks

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In this study, the effect of moisture content (at 8, 12, 15, 20, and 30% w.b.) was studied on true density, bulk density and porosity of chickpea grains. Also, the effect of moisture content of the chickpea stalks (at 10, 15, 30, and 50% w.b.) was studied on true density of stalks and chaff. All the tests were conducted on two Iranian varieties of chickpea, "Bivani" and "Jam" planting in Kermanshah and Karaj, respectively. With decreasing the moisture content of the chickpea grains from 30% to 8%, the grain true density and bulk density increased nonlinearly from 1224 to 1310 kg/m<sup>3</sup> and from 656 to 777 kg/m<sup>3</sup>, respectively. With decreasing the moisture content from 30% to 8%, the porosity of the grains decreased from 46.4% to 40.6%. The variety had no significant effect on grains porosity ( $P = 0.05$ ). But, the difference between bulk density and true density of grains for two varieties were significant at 5% and 1%, respectively. Moisture content has also a significant effect on true density of chickpea stalks and chaff. With decreasing the moisture content from 50% to 10%, the true density of stalks and chaff was decreased from 807 to 367 kg/m<sup>3</sup>. The variety had a significant effect on stalks true density ( $P = 0.05$ ). Relationship between true density, bulk density and porosity of grains as well as true density of stalks with moisture content were found as a polynomial functions.