

## DETERMINATION OF SOME ENGINEERING PROPERTIES OF SWEET POTATO (*Ipomoea batatas*)

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### ABSTRACT

*This work presents the determination of some engineering properties of sweet potato, (shape, size, colour, volume, particle density, sphericity, weight, surface area and compressive strength) was determined at moisture contents of 81.2%. Under approved standard laboratory conditions and using standard methods and instruments, experiments were conducted and results were obtained. The highest value of compressive strength for sweet potato when placed in the horizontally and vertically are 7.07 kN and 5.62 kN respectively. In bagging and sorting of sweet potato special care should be taken in placing the sweet potato in a horizontal position due to the compression of the weight of the sweet potatoes when bagged, the maximum values of the Major, Intermediate and Minor Diameter are 70.92mm, 63.01mm and 44.73mm respectively, the minimum values were calculated to be 56.0mm, 29.0mm and 38.77mm respectively, and mean to be 74.33mm, 41.04mm and 38.77mm respectively. These values were used for sorting, grading and construction of sieve to separate the values below the mean obtain. The coefficient of variation of the major, minor and intermediate was gotten to be 20.6%, 15.8% and 16.6% respectively. These results are important for maximum efficiency in designing equipment required for further processing of sweet potato and the reduction of mechanical damage to agricultural produce during postharvest handling and processing.*

**Keywords:** Engineering properties, sweet potato, sphericity, compressive strength