

## Effects of Aging on Thermal Properties of Some Improved Varieties of Cassava (*Manihot Esculenta*) Roots

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**Abstract :** Thermal properties of roots of three improved cassava varieties (TME419, TMS 30572, and TMS 0326) were determined on samples harvested at 12, 15 and 18 Months After Planting (MAP) conditioned to moisture contents of 50, 55, 60, 65, 70% (wb). Thermal conductivity at 12, 15 and 18 MAP ranged 0.4770 W/m.K to 0.6052W/m.K; 0.4804 W/m.K to 0.5530 W/m.K and 0.3764 to 0.6102 W/m.K respectively, thermal diffusivity from 1.588 to 2.426 x 10<sup>-7</sup>m<sup>2</sup>/s; 1.290 to 2.010 x 10<sup>-7</sup>m<sup>2</sup>/s and 0.1692 to 4.464 x 10<sup>-7</sup>m<sup>2</sup>/s and specific heat capacity from 2.3626 to 3.8991 kJ/kg.K; 1.8110 to 3.9703 kJ/kgK and 1.7311 to 3.8830 kJ/kg.K respectively within the range of moisture content studied across the varieties. None of the samples over the ages studied showed similar or definite trend in variation with others across the moisture content. However, second order polynomial models fitted all the data. Age on the other hand had a significant effect on the three thermal properties studied for TME 419 but not on thermal conductivity of TMS30572 and specific heat capacity of TMS 0326. Information obtained will provide better insight into thermal processing of cassava roots into stable products.

**Keywords :** thermal conductivity, thermal diffusivity, specific heat capacity, moisture content, tuber age

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