



Analysis on genetic variability and heritability of fruit characters in *Citrullus lanatus* (Thunb.) Matsumura and Nakai (Cucurbitaceae) cultivars.

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1 SUMMARY

Offspring performances coming from crosses between two *Citrullus lanatus* (*Bebu* and *Wléwlé small seeds* (WSS) cultivars) were performed to evaluate various components of variation, heritability and genetic advance of fruit characters. Parents (*Bebu* and WSS), F₁, F₂ and BC₁ hybrids were sowed in the same environment at two locations: Manfla (savannah) and Research Station of Nangui Abrogoua University (forest). Means of different parameters varied according to locations, with statistically significant performance observed in savannah (Manfla) than forest (Abidjan), and large variability was found between fruits of parental and hybrid F₁, BC₁ and F₂ families. Parental and F₁ individuals were homogenous while F₂ and BC₁ generations were heterogeneous. The early cultivar *Bebu* yields few big fruits per plant than the late cultivar WSS. Fruit maturity period and number of hybrids F₁, BC₁ and F₂ families were intermediate to those parents. Heterosis was observed in F₁ fruit size. Percentage heterosis according to mid-parent average was negative for fruit maturity period and fruit number but positive for fruit size characters. Percentage heterosis according to better parent average was negative for fruit maturity period and fruit number but positive for fruit size. The genotype, phenotypic and additive variance was larger than the environmental variance in the majority of the families at both locations. This involved high broad and narrow-sense heritability for all characters. In conclusion, this study showed a homogeneity between parental and F₁ genotype but a heterogeneity between BC₁ and F₂ one. In addition, heterosis was observed in F₁ fruit size and high heritability was observed for all characters.
