

## Genetic Variability Studies of Some Quantitative Traits in Cowpea (*Vigna unguiculata* L. [Walp.] ) under Water Stress

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**Abstract :** A research was conducted to study genetic variability of some quantitative traits in varieties of cowpea (*Vigna unguiculata* L. [Walp]) under water stressed from Zaria, Nigeria. Seeds of seven varieties of cowpea (Sampea 1, Sampea 2, IAR1074, Sampea 7, Sampea 8, Sampea 10 and Sampea 12) collected from Institute for Agricultural Research (IAR), Samaru, Zaria were screened for water stressed tolerance. The seeds were then sown in poly bags containing sandy-loam arranged in Completely Randomized Design with three replications for quantitative traits evaluation. The nutritional composition of the seeds obtained from the water stress tolerant varieties of cowpea were analyzed. The result obtained revealed highly significant difference ( $P \leq 0.01$ ) in the effects of water stress on the number of wilted and dead plants at 40 days after sowing (DAS) and significant ( $P \leq 0.05$ ) 34 DAS. However, sampea 10 has the highest mean performance in terms of number of wilted plants at 34 DAS while sampea 2 and IAR 1074 has the lowest mean performance. However, sampea 7 was found to have the highest mean performance for the number of wilted plants at 40 DAS and sampea 2 is lowest. The result for quantitative traits study indicated highly significant difference ( $P \leq 0.01$ ) in the plant height, number of days to 50% flowering, number of days to maturity, number of pods per plant, pod length, number of seeds per plant and 100 seed weight; and significant ( $P \leq 0.05$ ) at seedling height and number of branches per plant. Similarly, IAR1074 was found to have high performance in terms of most of the quantitative traits under study. However, sampea 8 has the highest mean performance at nutritional level. It was therefore concluded that, all the seven cowpea genotypes were water stress tolerant and produced considerable yield that contained significant nutrients. It was recommended that IAR1074 should be grown for yield while sampea 8 should be grown for protein supplements.

**Keywords :** cowpea, genetic variability, quantitative traits, water stress

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