STUDIES ON INTRA AND INTER CORRELATIVE RESPONSES OF PHENOLOGICAL, YIELD AND POSTHARVEST TRAITS IN SOME PLANTAIN (MUSA SPP.) GENOTYPES IN NIGERIA

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ABSTRACT
The correlative responses of pre-flowering growth traits of Musa species with the corresponding growth parameters at flowering, components of yield, fruit shelf life and pulp nutrient concentrations were performed. Data were generated from two field experiments conducted for two cropping cycles (2006 - 2008) in Onne, the high rainfall station of the International Institute of Tropical Agriculture (IITA). Results revealed that the number of days to flowering and harvest were highly negatively correlated with the pre-flowering growth traits. Total leaf area per plant at 3 and 6 months after planting (MAP) correlated positively with the number of hands with r-values of 0.682* and 0.661*, respectively. The correlation coefficients between the plant height and plant circumference at flowering and the number of hands were 0.969** and 0.982**, respectively in ‘PITA 14’. Harvest index was strongly associated with the number of green leaves at flowering in ‘PITA 14’ (r = 0.952**) and ‘30456-3’ (r = 0.780*). The number of green leaves at flowering also had the strongest correlation with the index of non-spotted leaves (r = 0.957**) in ‘PITA 14’. The concentration of phosphorus (P) and potassium (K) in the leaves at 3 MAP, however, had a positive association with the number of green leaves at flowering, fruit bulking period and the entire yield attributes. The leaf nitrogen (N) concentration at 6 MAP was also positively associated with number of days to shooting and maturity of fruits but negatively associated with fruit bulking period. All the growth, phenoology and yield parameters had positive relationship with the leaf-3 N concentration at 6 MAP. The number of green leaves at flowering was strongly (r = 0.712**) related to the leaf-3 N concentration at 6 MAP. The P and K leaf concentrations at 3 MAP were positively correlated with the N and P pulp concentrations. The study showed that the pre-flowering traits, especially the number of green leaves could determine the yield, postharvest qualities and nutrient content of the pulp.