Abstract

Taro [*Colocasia esculenta* (L.) Schott] is an important underutilised staple food crop in South Africa, with a lot of potential to address food insecurity among poor rural households. Development of high yielding stable taro cultivars is one of the most important goals of plant breeders. Twenty-nine taro accessions collected from major taro producing regions of the country were evaluated for growth performance, yield potential and stability under dryland conditions at two sites (Umbumbulu and Roodeplaat) in 2013, 2014 and 2015 cropping seasons. The experiment was laid in a randomised complete block design replicated three times. Growth and yield traits were measured. Analysis of variance and correlation analysis was done on all measured traits. The genotype by environment interaction was analysed using additive main effects and multiplicative interaction (AMMI). As a result, significant variation was observed for most of the traits except number of leaves and leaf width as well as number of suckers, while all the traits showed significant variation for location by year interaction. Number of corms showed significant variation for location by year by genotype interaction among all the traits evaluated. Genotype effect was highly significant ($p < .01$) on plant height, corm length, number of corms and significant ($p < .05$) on yield. The significant difference between genotypes for these traits proves that there was a genetic variability and there is a scope for selection. The correlation study also reveals that majority of the characters were positively correlated with each other. Total yield was positively and highly significantly ($p < .01$) correlated with all the measured traits. AMMI was effective in identifying stable genotypes. The top ranking cultivars per environment may be considered for cultivation under the specific environment, the stable cultivars may be considered for cultivation across all the taro growing regions.