EuroSciCon

5th Edition of International Conference on

Plant Genomics

June 13-14, 2019
Berlin, Germany

AJPSKY 2019, Volume 09

Genetic analysis of Seed Quality Traits and Concentrations of Zinc and Iron in Maize Topcross Hybrids

Richard Akinwale

Obafemi Awolowo University, Nigeria

Adequate knowledge about the genetic control of iron (Fe) and zinc (Zn) concentrations as well as seed quality in maize (*Zea mays L.*) is important in improving the crop for both traits thereby combating malnutrition and food insecurity in sub-Saharan Africa. Twenty-six maize genotypes comprising 16 topcross hybrids were evaluated for seed quality traits and Fe and Zn concentrations in maize kernels to study their inheritance pattern.. The experiment was laid out using randomized complete block design with three replicates. Data collected were subjected to analysis of variance. Genotypic effect was significant for all traits except Germination Index (GI) and shoot length. When genotypic effect was partitioned into its genetic effects, both General Combining Ability (GCA) for line and Specific Combining Ability (SCA) mean squares were significant for all traits except shoot length, shoot fresh and dry weights. Similarly, GCA for tester was significant for all traits except GI, number of roots, and SL. General combining ability was relatively more important for germination rate index, primary root length, root fresh and dry weights, as well as shoot fresh and dry weights indicating that additive gene action is in control. In contrast, SCA was relatively more important for Fe and Zn concentrations, indicating that non-additive gene action is in control. Inbreds TZEEI82 and TZEEI64 had superior GCA effects for conductivity, In terms of germination percentage, TZEEI81 and TZEEI 82 had the best GCA. For Fe concentration, varieties DTE-STRYSYNPOPC3, 2009TZEEI-OR1STR, and 2009TZEE-OR1STRQPM and inbreds TZEEI81 had superior GCA effect while inbreds TZEEI58 and TZEEI64 had outstanding GCA effects for Zn.