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Genotype x environment interactions and stability analysis for yield and sucros of some promising sugarcane clones

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Two field experiments were carried out at two locations, i.e. Shandweel Research Station (Sohag Governorate) and Kom Ombo Research Station (Aswan Governorate) for the two successive seasons 2018/2019 and 2019/2020 (two plant cane) to evaluate 7 sugarcane genotypes for the stability of its performance for economic characteristics. The tested genotypes were six promising sugar cane clones namely G 98-28, G99-160, G84-47G, 2003-47, G 2003-49 and G 2003-38 along with commercial variety GT 54-9. In both seasons plant cane was planted during the second week of March and harvested after 12 months in each location. The trial was laid out in a randomized block design (RBD) with three replications at each location. The genotype x location interaction for cane yield and pol% indicated that genotypes ranking differed and the magnitude of differences between genotypes changed from one environment to another. The second order interaction was not significant for both traits. Shandweel location surpassed Kom Ombo location in cane yield; however, Kom Ombo location produced higher value of pol% compared with Shandweel location. Promising clones 2003-47 and G 2003-49 and commercial variety GT54/9 were significantly superior to the rest of genotypes for cane yield. While the lowest cane yield was produced by G99-160 and G2003-38 clones. The promising clone G2003-47 had the best performance for Pol% content. The promising clones G2003-47 and G2003-49 and commercial variety GT54-9 could be classified as stable. However, G98-28 and G84-47 clones are consistent but were low in cane yield. This study suggests that the stability analysis can contribute with supplementary information on the performance of new sugarcane selections prior to release for commercial cultivation and increases the efficiency of cultivar development programs.

Key words: Sugarcane, Stability, Genotypes x Environments, Yield and sucrose.

Biography

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