Adaptability and stability analysis of the juice yield of yellow passion fruit varieties

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ABSTRACT. This study analyzed the genotype x environment interaction (GE) for the juice productivity (*JuProd*) of 12 yellow passion fruit varieties (*Passiflora edulis* Sims. f. *flavicarpa* Deg.) using additive main effects and multiplicative interaction (AMMI) model and auxiliary parameters. The experiments were conducted in eight environments of Bahia State, Brazil, using a randomized block design with three replications. Analysis of variance showed significant effects (P ≤ 0.01) for environments, genotypes, and GE interaction. The first two interaction principal component axes (IPCAs) explained 81.00% of the sum of squares of the GE interaction. The AMMI1 and AMMI2 models showed that varieties 09 and 11 were the most stable. Other parameters, namely, the AMMI stability value (*ASV*), yield stability (*YSI*), sustainability, and stability index (*StI*), indicated that other varieties were more stable. These varying results were certainly a consequence of methodological differences. In contrast, the ranking of varieties for each of the stability parameters showed significant positive correlations (P ≤ 0.05) between IPCA1 x (*ASV, YSI*), *JuProd* x (*StI, YSI*), *YSI* x *ASV*, and *StI* x *YSI*. Cluster analysis based on the genotypic profile of the effects of the GE interaction identified three

groups that correlated with the distribution of varieties in the AMMI1 biplot. However, the classification of stable genotypes was limited because the association with the productivity was not included in the analysis. Variety 08 showed the most stable and productive behavior, ranking above average in half of the environments, and it should be recommended for use.

Key words: *Passiflora*; Breeding; Multivariate analysis; Genotype x environment interaction