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Influence of agronomic variables on quality of tomato fruits

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ABSTRACT

In order to study interactions between agronomic variables and chemical composition that determine the quality of tomato fruits, a group of statistical techniques were applied: discriminant analysis (DA), cluster analysis (CA) and principal component analysis (PCA) combined with ANOVA. The results of DA when characterizing the agronomic parameters were successful, especially when the collection date was used as a factor for classification. CA showed the importance of the chemical variables related to the metabolic relationships, while the principal component analysis and ANOVA provide information on the interaction between variables related to the production and chemical composition of tomatoes. The combined use of PCA and ANOVA is a suitable tool for studying the complex interactions between agronomy and chemical composition. Collection date was the main agronomic parameter effected the chemical composition, while variety and production system had a minor effect. The application of PCAANOVA showed that the taste of tomato depends on three factors: sugars (glucose and fructose), acidity (citric, malic and ascorbic acids), and minerals (Na and Mg). For the tomatoes with same maturity degree, the taste depends on interaction of date collection and system production.

KEYWORDS

Tomato; Chemical Composition; Agronomy; Multivariate Analysis

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