

Abstract

The effect of stem properties on the susceptibility to puncture injury of tomato cultivars was determined. Four cultivars were considered: Tradiro (De Ruiters seeds) and S&G 49-333 (Syngenta seeds), which are not susceptible and S&G 40-292 (Syngenta seeds) and BS 92-62 (Bruinsma seeds), which are very susceptible to the puncture injury. The mechanical properties of the fruit and the stems were measured using a universal testing machine. A calliper and a goniometer were used to measure the geometry of the stems. The susceptibility to puncture injury was measured by a shaker test, which took into account both stem and fruit properties. By means of the principal components and Poisson-regression analysis, it was shown that mainly the fruit properties such as the puncture force of the intact tomato and pericarp tissue, the toughness of the skin and the tomato mass, determined the amount of punctures. The effect of the geometrical and mechanical stem properties relative to the fruit properties on the puncture injury susceptibility of tomatoes was not significant.