Abstract
The content of potassium in tomato (Lycopersicon esculentum Mill.) var. Yaqui is associated to fruit quality; however, the amount required is not yet clearly defined. In this study the influence of potassium nutrition on yield and fruit quality of processing tomatoes was determined. The internal requirement of K (RIK) in the aboveground dry matter was also defined. Two soilless experiments were carried out under greenhouse conditions. In the first experiment the effect of several K levels (Qk = 3, 6, and 9 meq L-1) in the nutrient solution on production, aerial biomass allocation, harvest index (IC), as well as yield and fruit quality, was studied. The contents and accumulation of K in the aboveground area was also estimated. In the second experiment, higher levels of Qk (6, 9, 12, 15, and 18 meq L-1) were tested to check their influence on fruit quality. The amount of K in the aboveground area and fruit quality (titrable acidity and fruit firmness) increased in a direct way to the value of Qk between 3 and 9 meq L-1. Concentrations higher than 6 meq L-1 did not increase fruit quality significantly. The accumulation of dry matter and K was higher in fruits as compared to aerial biomass (stems and leaves). Within the treatment of Qk, statistical effects were found in the IC from 0.54 to 0.60 g g⁻¹. The amount of K required by a tomato crop to obtain higher yields and good quality may be estimated with a RIK of 4.11%, which is equivalent to 3.27 kg K t⁻¹ fresh fruit produced.

Keywords
Lycopersicon esculentum Mill., soilless culture, internal potassium requirement, yield, fruit quality.