Title Maturity and temperature influence on lycopene distribution during filtration processing of red-fleshed watermelons

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Citation Thesis, Master of Science (Horticulture). Oklahoma State University.64 pages. 2006

Keywords watermelon; maturity

Abstract

Scope and method of study. Our objectives were to evaluate filtration processing and extraction steps necessary for purification of lycopene from red-fleshed watermelons. Maturity and temperature influence on lycopene segregation during processing were investigated. Purification of lycopene was evaluated with a filtration procedure on ground flesh and subsequent centrifugation of the produced filtrate. Temperature treatments included 25°C, 60°C and 85°C, applied on ground flesh before filtration.

Findings and conclusions . Ground flesh filtration segregated lycopene in two fractions; a filter cake and a filtrate. At 25°C segregation was maturity dependent, with overripe melons segregating more in the filtrate. About 75-85% of the filtrate lycopene could be recovered as pellet for undermature and mature melons, while only 55% for overripe. This loss could be partially avoided with heat application on ground flesh, which resulted in lycopene retention to the filter cake fraction. Further rinse of the filter cakes and subsequent filtrations was not recommended, due to excessive lycopene loss.