Title Optimization of the duration of deastringency treatment depending on persimmon maturity

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Abstract

Persimmon (*Diospyros kaki* L.) 'Rojo Brillante' is astringent at harvest. Treatment with 95% CO_2 for 24h at 20°C has been adopted by the industry as the standard deastringency method since it has demonstrated to be effective at different stages of fruit maturity. The aim of the present work was to study the effectiveness of shorter exposition to 95% CO_2 on astringency removal when applied at different fruit maturity stages. Fruit at early, middle and late maturity stage were exposed to 95% CO_2 at 20°C for 12, 18 or 24h. The level of astringency of the fruit was evaluated 0, 1, 2, 3 and 6 d after the CO_2-treatment. Sensory evaluation as well as determination of soluble tannin content and acetaldehyde production was carried out. Results showed that astringency after CO_2 treatments progressively decreased with time. Only the 24h treatment ensured complete deastringency of the fruit irrespective of the maturity stage; fruit at middle maturity stage completely lost the astringency just after treatment, while in early and late mature fruit a period of 2 d after treatment was necessary to remove astringency. Treatment for 18h was not effective when applied to early mature fruit; however, when applied to fruit at middle and late stage of maturity, the treatment was effective immediately and 6 d after its application, respectively. Treatment for 12h was ineffective and fruit remained astringent irrespective of the maturity stage, even 6 d after treatment. Response of the different maturity stages to the treatment is discussed.