

Application of GA3 and NAA as a Means for Improving Yield, Fruit Quality and Storability of Black Monukka Grape Cv.

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Abstract :

This study was carried out for two successive seasons: 2009 & 2010 in a private vineyard located at El-Khatatba, Menoufiya governorate; to study the possibility of increasing yield, improving cluster quality, reducing berry shattering and enhancing storability of Black Monukka grapes through spraying with GA3 and different doses of NAA either in the single or in the combined form. The chosen vines were ten-year-old, grown in a sandy loam soil, spaced at 2 X 3 meters apart, irrigated by the drip system, and cane-pruned and trellised by the double "Y" shape system. Eight treatments were applied as follows; spraying with tap water (control), spraying with 20 ppm GA3, spraying with 25 ppm NAA, spraying with 50 ppm NAA, spraying with 75 ppm NAA, spraying with 20 ppm GA3 + 25 ppm NAA, spraying with 20 ppm GA3 + 50 ppm NAA and spraying with 20 ppm GA3 + 75 ppm NAA. All treatments were applied after fruit set stage (at 2-3 mm berry diameter). Spraying with 20 ppm GA3 + 75 ppm NAA gave the best results in comparison with control. This treatment resulted in the best yield and its components as well as the best physical properties of cluster and improved physical and chemical characteristics of the berries. Histological studies showed the existence of a negative correlation between pedicel diameter and shattering through the increase in thickness of the cortex and xylem layers in all treatments specially that of spraying with 20 ppm GA3 + 75 ppm NAA. Concerning the effect of GA3 and/or NAA on clusters during cold storage for four weeks at 0°C, RH 90-95%, it was noticed that spraying with 20 ppm GA3 + 75 ppm NAA was the best treatment on enhancing storability, since it reduced wastage resulting either from disease infection or physiological disorders and inhibited the rate of deterioration of physical and chemical properties of grapes during cold storage by reducing weight loss (%), decay (%), shattering (%), total spoilage (%) and the decrease in firmness, it also increased berry colour, TSS and TSS/acid ratio and decreased acidity compared to control. The economical study indicated that spraying clusters with 20 ppm GA3 + 75 ppm NAA resulted in the highest net income of Black Monukka grape as compared to the control. [Rizk-Alla, M.S., Abd El-Wahab, M.A. and Fkry, O.M. Application of GA3 and NAA as a Means for Improving Yield, Fruit Quality and Storability of Black Monukka Grape Cv. Nature and Science 2011;9(1):1-19]. (ISSN: 1545-0740). <http://www.sciencepub.net>.

Key Word :

Application; GA3; Improving Yield; Fruit Quality; Storability; Black Monukka Grape

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