DENG, Yaxin; Mengjie ZHAO; Lingyun JIA; Junyu LIANG; Fei WANG; Meiling YAO, Irina MITINA; Ji ZHANG; Hanqing FENG and Gheorghe Arpentin. Exogenous ATP Functions in Alleviating the Decrease in Quality of Grape (Vitis vinifera L.) Fruits After Harvest. Flavour and Fragrance Journal. 2025, vol. 40, Issue 3, pp. 417-424. ISSN 0882-5734. Disponibil: https://doi.org/10.1002/ffj.3850

Our current study investigated the effects of exogenous ATP (adenosine triphosphate) on the post-harvest quality of grape (Vitis vinifera L.) fruits. The results demonstrated that treatment with exogenous ATP effectively alleviated the decreases in fruit firmness, total soluble solids (TSS), vitamin C content and soluble protein of the harvested grape fruits. Furthermore, exogenous ATP also significantly enhanced the content of the titratable acidity (TA) of grape fruits after harvest. This was reflected by the observations that ATP treatment increased the hardness, TSS content, vitamin C content and soluble protein content of the harvested grape fruits by 14.39%, 6.29%, 31.05% and 15.18% on average during 8 days of storage, respectively, compared to the controls. In addition, the harvested grape fruits treated with exogenous ATP had higher activities of SOD (superoxide dismutase) and CAT (catalase) and higher contents of total phenolics and flavonoids compared to the controls. This was reflected by the observations that ATP treatment increased the SOD activity, CAT activity, flavonoid content and total phenol content by 39.79%, 19.43%, 17.74% and 15.06% on average during 8 days of storage, respectively, compared to the controls. These observations highlighted that exogenous ATP can function in alleviating the decrease in quality of grape fruits after harvest and increasing the antioxidative ability of harvested grape fruits during the storage period. Consequently, treatment with exogenous ATP could offer an efficacious approach for preserving the quality of grape fruits during the storage period.