Title Effect of rootstocks and pre-harvest treatments on storage life of Thompson Seedless grapes

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Abstract

Growing grapes on rootstocks is a common practice in India, since rootstocks helps in improving the quality of grapes through enhanced uptake of nutrients. Secondly, increase in cell wall turgidity of the grape berries by pre-harvest treatments of calcium nitrate as dipping has a major contribution in increasing the shelf life. Considering this, a trial was conducted on seven-year-old Thompson Seedless grapes grafted on four rootstocks, viz., Dog ridge, Salt Creek, 1613 C and St. George. Bunches were dipped in 1.0% calcium nitrate solution. At harvest, the grapes from each rootstock were harvested from calcium nitrate treated and untreated vines and kept under cold storage for 30 days. After removal from cold storage, the observations were recorded in shelf for five days. To study the role of nutrients in increasing shelf life, the nutrients were analyzed from rachis of the bunch. Among the different rootstocks, Dog ridge rootstock was found better for minimizing PLW in Thompson Seedless compared to other rootstocks. On the 3rd day under shelf, minimum PLW of 6.26% was recorded when the berries were treated with calcium nitrate compared to untreated control. On the same day under shelf, fallen berries were minimum on Dog ridge rootstock in calcium nitrate treated (4.05%) compared to untreated (7.0%) grapes. Maximum berry fall was recorded in Thompson Seedless grafted on St. George rootstock. The same trend was also recorded for percent rotten berries. The pedicel browning was more on St. George rootstock having shriveled berries leading to the reduced shelf life. In treated grapes, higher calcium of 101.96 ppm and magnesium (87.70 ppm) was recorded in Dogridge rootstock compared to 98.79 ppm and 63.70 ppm in untreated, respectively.