Title Table grape: Postharvest requirements in Iran

Author Hassan Mahmoudzadeh

Citation Abstracts of 7th International Postharvest Symposium 2012 (IPS2012). 25-29 June, 2012. Putra World Trade Centre (PWTC), Kuala Lumpur, Malaysia. 238 pages.

Keywords Table grape; postharvest; storage condition

Abstract

The table grape (*Vilis vinifera* L.) is a non-climacteric fruit with a relatively low rate of physiological activity, is subject to serious water loss following harvest, which can result in stem drying and browning, berry shatter, and even wilting and shriveling of berries. Harvest date is determined by total soluble solids (TSS) of 14 to 17.5% depending on cultivar and production area. In some situations, the TSS/TA (titratable acidity) ratio of 20 or higher is used to determine maturity for early ripening varieties such as Yaghoti cultivar in Sistan area in Iran. For red and black colored cultivars (Qezil uzom and Rasha), there is also a minimum color requirement. It is necessary pre-cooling after harvest. Cooling must start as soon as possible and SO_2 applied within 12 hours of harvest. After pre-cooling is completed, the pallets are moved to a storage room to await transport ideally the storage room operates at -1° to 0°C (30°C to 32°F) and 90 to 95 percent RH, with a moderate airflow 20-40 CFM per ton stored grapes. The constant low temperature, high RH and moderate airflow are important to limit the rate of water loss from fruit stems. 90-95% RH and an air velocity of approximately 6-10 meter per minute (MPM) is suggested during storage. Fruit should be stored at -0.5-0°C (31-32°C) pulp temperature throughout its postharvest life. Storage temperature of -1.0 to 0.0°C (30-32°F) is recommended for mature fruit. Freezing damage may occur in less mature grapes. The highest freezing point for berries is -3.0°C (26°F), but freezing point varies depending on TSS. CA (2-5% O_2 + 1-5% CO_2) during storage shipment is not currently recommended for table grapes because its benefit is slight and SO_2 is used for decay control. CO_2 at 10-15% in air can be used to control grey mold for up to 2-4 weeks (depending of cultivar). Stem respiration rate is approximately 15 times higher than berry respiration. Physiological disorders may be occurred such as shatter (loss of berries from the cap stem) and waterberry ((berry softening) is associated with fruit ripening and most often begins to develop shortly after veraison. Table grapes are not very sensitive to ethylene. However, exposure to ethylene (> 10 ppm) may be a secondary factor in shatter. Gray Mold (*Botrytis cinerea*) is the most destructive of the postharvest diseases of table grapes, primarily because it develops at temperatures as low as 31°F (-0.5°C) and grows from berry to berry.