

Abstract:

Interest in chestnut is increasing because of both its healthy nutritional contents and curiosity about ancient traditional foods. Fruit is grown either for fresh market or for production of special and typical foodstuff. The nut loses viability rapidly after harvest due to fruit rots and insects and several storage methods have previously been applied to prolong its postharvest life.

The present work considers two local chestnut cultivars (Catot and Platella) from Valle Camonica (Brescia, Northern Italy), grown at 900 m a.s.l. Nuts were treated (or not) with traditional curing (nine days submerged in water), hot (51°C) water for 45 min, NaHCO₃ 1% and stored for 60 and 105 days in cold room (1°C) equipped with two different Controlled Atmosphere conditions (CA₁: 2.5 % CO₂, 1.5 % O₂; CA₂: 20% CO₂, 2% O₂). At harvest and following storage, fruit of cv Platella from control, cured and CA2 treatments, were peeled, sterilized, cut into halves, plated in Petri dishes and incubated at 24°C for 21 days to assess fungal contamination.

Curing, heat treatment and CA₂ were very effective in controlling fruit rots until December (60 days) then their effect decreased. CA₂ maintained the best quality of fruits in term of freshness, taste and flavor. For example, in mid February (105 days) the chestnuts looked as fresh and bright as just picked nuts. Cured and heat treated fruits were respectively a little or very dry and NaHCO₃ treatment had no effect in controlling fruit rots. The treatments seemed to exhibit a selective effect on diverse fungal contaminants; i.e. curing was efficacious in reducing contamination due to all fungi except from *Penicillium* spp., and CA gave excellent results, but it was ineffective in controlling *Aspergillus niger*. Apart from NaHCO₃, the treatments were effective in controlling insect development.