

Title A new approach to postharvest nut storage for quality: Could seed storage principles be applied for commercial nut storage?

Author Ebrahim Hadavi

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Abstract

Current studies on viability maintenance of nuts (as seed) and postharvest quality maintenance of nuts (as edible) are going on independently. Based on research with pistachios and literature review it is possible to suggest integration of available knowledge in these two fields of activity to obtain better results for both. Possibly in both fields a unique concept is aimed. The literature review indicated that concepts used to maintain viability of stored seeds such as gradual drying, storage below critical RH and use of desiccants could be (and some are) applied to maintain quality of edible nuts in commercial nut storage. At the appropriate relative humidity fungal attack is one of the most serious factors inducing deterioration of seed viability. In addition mycotoxin (S) produced by some fungi are a serious problem for quality and marketability of numerous nut crops including pistachio and Brazil nuts, so it is possible that application of techniques to maintain seed viability could also be used in commercial storage of edible nuts as well. Other quality factors like aroma and taste could be influenced also as the integrity of biological membranes in viable seeds is maintained better by such treatments. Prevailing techniques such as fast-drying methods which reduce viability could increase susceptibility of nuts to further fungal contamination, possibly because the fungi could penetrate and establish better. In earlier work treatments that distorted cellular structures increased aflatoxin contamination from 12% of nuts 100% of pistachio nuts. In another study on viability maintenance of peanuts it was deduced that the best treatments for viability maintenance had the lowest fungi growth as well.