Using of Ozone and Polymer for Control of Oryaezophilus Surinamensis on Some of the Iranian Export Products along with Evaluating Their Quality

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Abstract : Storage pests with quantitative, qualitative and hygienic losses to storage products lead to heavy damage in these products. In Iran, an average of 10 to 20 percent of agricultural products are destroyed in warehouses every year by pests and other harmful factors. One of the new methods of controlling storage pests is ozone gas treatment, which is an environmentally friendly method and can be used to replace chemical methods to control storage pests. almonds and dried pistachios are among the most important dried fruit items in Iran, which annually account for a significant part of dried fruit exports. In the present study, the percentage of adult insect mortality of toothed weevil (Oryzaephilus surinamensis L.) (along with almond and dried pistachio samples exposed to ozone gas in four concentrations (4, 5, 6 and 7 ppm) for 24 hours The ozone gas ignition tank was packed with polyethylene and cellophane polymers. The results showed that 99.5% losses occur at a concentration of 7 ppm. Also, comparison of two packaging polymers was performed and evaluation of product quality changes due to the above treatments was done in the form of changes in colorimetric factors and organoloptic properties of the product. In the test of surface color changes of the product, by increasing the dose of ozone gas, the surface colorimetric factors of pistachio and dried almond samples did not have a significant effect. The results of sensory test of almonds and pistachios showed that after seventy-two hours of exposure to the open air of dried ozone-treated nuts, the unpleasant odor of this gas disappears and is not recognizable. according to the results of experiments, it can be concluded that ozone is an effective and deadly gas for toothed insects that does not have a significant effect on changing the color factor of pistachio and dried almond products and after seventy-two hours exposed to air. Being free loses its unpleasant odor. Cellophane polymer showed higher permeability than polyethylene, which has a more favorable effect in combating pests by ozone gas.

Keywords : almond, cellophane, mortality, pistachio, polyethylene, oryzaephilus surinamensis l., ozone gas
Conference Title : ICAACS 2024 : International Conference on Agriculture, Agronomy and Crop Sciences
Conference Location : Paris, France
Conference Dates : August 29-30, 2024