The Presence of Phthalates from Polyethylene and Polystyrene Polymers in Organic Solanum lycopersicum (Tomato)

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There are several types of polymers with chemical additives. These polymers have different molecular structures and different practical uses. The purpose of this research was to determine the potential exposure to phthalates in organic tomatoes, being packed with polystyrene and polyethylene polymers and exposed to heat. The hypothesis was that packing Solanum lycopersicum with polyethylene and polystyrene polymers cause significant exposure to phthalates. The importance of this research was to guide consumers of the possible risks of eating these tomatoes that have been packed with these polymers and sold in stores. The independent variable was the type of plastic packaging, while the dependent variable was the presence of phthalates on the tomatoes. Tomatoes were picked up at a local organic farm in Aibonito, PR. Moreover, the experimentation was conducted in the facilities of regulated laboratories and under the supervision of their chemists. Then, samples of phthalates were extracted by rubbing the surface of a tomato with a hyssop moistened with ethyl acetate and stored in a sealed glass vial containing 1mL of ethyl acetate. Finally, the data was analyzed on a GC/MS (gas chromatography/mass spectrometry). Phthalates and other plasticizers were found on the tomatoes, but not enough to exceed the limits of National Toxicology Program (NTP), to determine a food as toxic or harmful to health. It is concluded that the research hypothesis was not supported, but it has been proven that longitudinal exposure to phthalates has carcinogen and estrogenic effects.

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