Alternative for Formaldehyde-Based Embalming

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Formalin-based embalming fluid has a primary reacting agent of formaldehyde, a carcinogenic and toxic substance. This research study presents environmentally-safe and non-toxic alternatives to formalin embalming fluid, tested on rat muscle, tail, and skin tissue. Using seven different solutions: honey, 85% sucrose, natron made with sodium carbonate decahydrate, 63% sodium carbonate natron (27g), 19% sodium carbonate natron (3.7g), molecular sieves, and 90% isopropyl alcohol, the rat tissue was preserved and observed over the course of 29 days. Decomposition/decay was measured using a scoring chart and other qualitative measurements, and the samples were each weighed before and after preservation. None of the solutions showed ideal preservation results, but they all slowed the process of decomposition. 90% isopropyl alcohol maintained the best appearance but is not an environmentally-friendly alternative. Honey showed results similar to diaphonization, a chemical-intensive process, which could be promising as an alternative to it. The overall conclusion was that dehydrating agents are not ideal for maintaining a consistent appearance of fresh tissue. The work presented here contributes to future research on alternative embalming fluids that are safe for the environment and the people working with them.

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