Mitigating Digestive-related Obstructions and Other Risks Caused by Hard Particles of Stuffed Toys Through Creating a Coated Beeswax

Almuhaysh, Faisal (School: Alkifah Academy)

Stuffed toys have always been an integral part of most childhoods. The resulting global market for them is currently ~8 billion USD per year. Hard parts are included in stuffed toys to serve as eyes or other features. These parts can pose dangerous risks, namely suffocation and digestive-related obstructions which are difficult to prevent. Despite the increased incidence of injuries and death from these parts, research has so far failed to identify a solution, and caretakers are burdened by prevention. In this work, I aim to identify material solutions to attenuate the risks of suffocation and digestive-related obstructions from hard particles in stuffed toys. Thus, I suggested beeswax to be an alternative for these hard particles. To enhance the inertness of beeswax, I coated it; three samples were coated with the candelilla-wax coating and three other samples were coated with the enteric-coating to analyze the most suitable coated-beeswax. Data was gathered through scientific research, discussions with experts, and experimentation. Four experiments were completed on the candelilla-coated and the enteric-coated beeswax samples: detergent resistance, acidity resistance, heat resistance, and pressure resistance. Results have shown the suitability of candelilla-coated beeswax more than enteric-coated beeswax. This design provides a safer and eco-friendly solution for hard particles in stuffed toys, with positive repercussions on the national economy. We should all preserve our children's safety by choosing safe toys for them. This study shows that the candelilla-coated beeswax is much safer and inexpensive compared to hard plastic particles in stuffed toys, and has the potential to significantly affect the well-being of the stuffed toys industry worldwide.

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