Microplastic Analysis in Commercial and Local Honey

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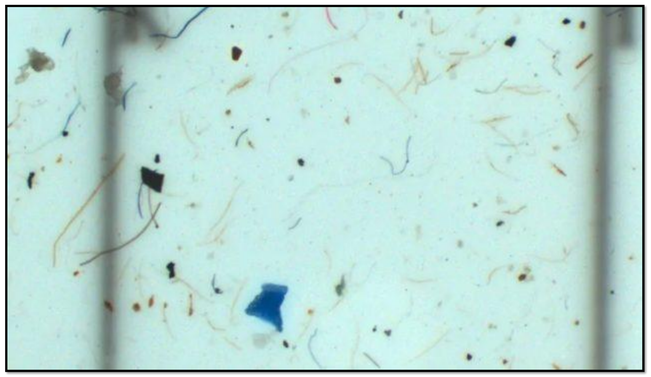
Background

- Honey is a vital food source known for its anti-inflammatory antioxidant, antibacterial, and antimicrobial properties.
- Recent studies have discovered the migration of microplastics (MPs) into various environments.
- Microplastics(MPs) are small plastics from 1nm-5mm and have been associated with a variety of health concerns.

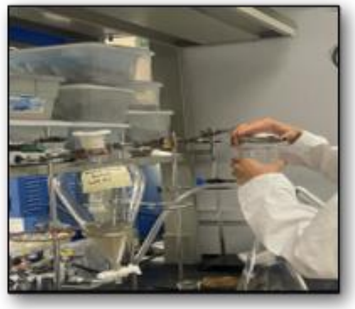
Introduction

- There is a lack of research on MPs in honey and on their extraction, evaluation, and analysis of presence.
- Studies on MP contamination were based in Europe and South America, however, very little were based in North America.
- The objective of this study is to analyze the concentration of MP and analyze the shapes, sizes, and polymer type found in honey.
- This study focuses on three regions of Texas; Central, Gulf Coast, and North.
- Based on our results, we aim to provide evidence of industry pollution and its effects on the environment.



Methodology

- Source local honey from the three zones found in common commercial honey regions.
- Dissolve organic matter using 2.5% KOH.
- Isolate MP using flotation methods with 6 mol NaCl.
- Vacuum filtrate.
- Identify MPs using Fourier Transform Infrared Spectroscopy (FR-IR).



Commercial Sample

Local beekeeper Sample

Expected Results

- Higher microplastic concentrations are expected to be seen in the commercially distributed honey.
- The most abundant microplastic type expected is polyethylene (PE) and polypropylene (PP), common packaging materials.
- Fibers are expected to be the most prominent MP in local beekeeper honey.

Acknowledgements

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