**What is with all the plastic garbage everywhere and where does it go?**

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**INTRODUCTION**

Over 8 billion metric tons of plastic materials have been manufactured. Plastic pollution, both macro- and micro-plastics, have been accumulating in the environment, due to the non-biodegradable property of the materials. The plastics litter the roadides, yards, farm fields, creeks, and larger natural environments like the oceans. Plastic waste migrates through the environment in many ways. This study investigates the local plastic problem and how it relates to the Porter County compact, created mostly from the roadside collection of leaves For this study, local compost was collected and analyzed and was compared to local plastic pollution collected in the Salt Creek Watershed in the Porter County area.

**METHODS**

Both micro- and macro-plastics were collected from both the local composting site and along/around roads throughout the Salt Creek Watershed of Porter County, IN. The macroplastic samples from the Salt Creek Watershed and composting site were quantified and classified by recycling numbers and categories that matched their spectra. See Table 1.

**RESULTS**

- **Fourier transfer infrared spectrometer (FTIR)**: Overlapping FTIR spectra of known PP and a straw sample. An FTIR was used to obtain spectra for the pieces of waste plastic that did not have a labeled recycling code. Spectra of known samples were collected for comparisons to the unknowns. After careful analysis and comparison, the unknown samples could then be classified into categories that matched their spectra. See Figure 4.

- **Stereomicroscopy for microplastics analysis**: Microfibers under stereomicroscope at 10x. Figure 5.

- **Table 1. Categorization by use of plastics recovered from the field, calculated by number of pieces.**
  
<table>
<thead>
<tr>
<th>Plastic Type</th>
<th>Percentage by Mass</th>
<th>Percentage by Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Packaging</td>
<td>51.5</td>
<td></td>
</tr>
<tr>
<td>Household products</td>
<td>10.5</td>
<td></td>
</tr>
<tr>
<td>Electronic &amp; Auto part</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Straw</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Styrofoam</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

**CONCLUSIONS**

- Polypropylene (PP) and Low density polyethylene (LDPE) are the most common plastics found in compost. Polypropylene (PP) and polyethylene terephthalate (PET) were the most common plastics found on the roadside in the Salt Creek area.
- The data shows that plastic waste in compost corresponds to plastic collected in the environment throughout Salt Creek.
- It was also seen that certain microplastics and microfibers were present and very prevalent in the compost samples showing that microplastic pollution is transferred and created in compost. Since the county compost is used by many residents, the transfer of the pollutants grows.
- Overall it was confirmed that plastic pollution is found everywhere, in compost and throughout our watershed, and more preventative measures need to be in place to stop its creation and spread.

**REFERENCES**

2. [https://www.unenvironment.org/interactive/beat-plastic-pollution/](https://www.unenvironment.org/interactive/beat-plastic-pollution/)

**ACKNOWLEDGEMENTS**

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