Edible Indicators

Summary

The anthocyanin in cabbage is used to demonstrate pH differences in household chemicals.

Materials

- Purple Cabbage (other fruits & vegetables which work well are radishes, beets, blueberries, grape juice. Note: Purple cabbage offers a wide range of colors and is probably the best example if a single indicator is to be used)
- Beakers/cylinders
- blender
- array of buffers pH 2-13
- household items
  - vinegar
  - aspirin
  - baking powder
  - ammonia

Procedure

- To make cabbage indicator simply place several cabbage leaves in a blender, add water and puree.
- Add indicator to each cylinder in the array of buffers.
- The pH of household chemicals can be tested by adding indicator and comparing the color produced to the buffer array.

Note: The indicators tend to deteriorate on standing and should be either freshly prepared or refrigerated if necessary for a day or two. I have frozen them in ice cube trays and they have kept well for several weeks. The indicator is an anthocyanin.

Discussion

For cabbage:

<table>
<thead>
<tr>
<th>pH</th>
<th>Color</th>
<th>Compound</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-3</td>
<td>pink</td>
<td>7-up, vinegar, aspirin, lemon juice</td>
</tr>
<tr>
<td>4-7</td>
<td>purple</td>
<td>tap water</td>
</tr>
<tr>
<td>8</td>
<td>blue</td>
<td>soap</td>
</tr>
<tr>
<td>9</td>
<td>blue green</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>green</td>
<td>sodium bicarbonate, Rolaids</td>
</tr>
<tr>
<td>11</td>
<td>green-yellow</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>Color</td>
<td>Compound</td>
</tr>
<tr>
<td>------</td>
<td>-------</td>
<td>------------------</td>
</tr>
<tr>
<td>12 &amp; up</td>
<td>yellow</td>
<td>ammonia, drano</td>
</tr>
</tbody>
</table>

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