Review Answers for Food Preservation Lab

1. Food needs to be preserved from spoilage due to harmful bacteria (and molds and pests, etc.) The conditions bacteria need to grow can be summarized with the acronym FATTOM, as shown below. Methods of food preservation work by manipulating one or more of these conditions so that bacteria are either killed or at least won't multiply to a harmful level. Provide an example of a food preservation method that works by addressing the particular growth condition given below. A few are done for you.

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Food preservation method</th>
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<tbody>
<tr>
<td>Food</td>
<td>salting (adding salt so that bacteria that tried to eat the food would be dehydrated)</td>
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<tr>
<td>Acid (pH)</td>
<td>fermentation; pickling</td>
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<tr>
<td>Time</td>
<td>eating a food too quickly for bacteria to colonize it!</td>
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<tr>
<td>Temperature</td>
<td>cooking a food to a sufficient temperature to kill the bacteria</td>
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<tr>
<td>Oxygen</td>
<td>canning (creates a vacuum, depriving the contents of oxygen)</td>
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<tr>
<td>Moisture</td>
<td>dehydration</td>
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2. Describe the following three cooking instructions.

   A. Simmer = heat to just below a boil (see the little bubbles…)
   B. Boil = heating to the stage of producing large bubbles in the liquid
   C. Bring to a rolling boil = boiling so hard that stirring does not interrupt the bubbles

3. Why is canning a safe method of food preservation?

   Canning takes advantage of pH, temperature, and creation of a vacuum inside the canning jars to deprive bacteria of the conditions needed to spoil food.

4. Describe how to prepare the following pieces of canning equipment in order to can a food safely.

   A. Bands: wash and dry
   B. Lids: bring to a simmer for at least 10 minutes.
   Do *not* boil, or they will be ruined, unable to create a seal.
   C. Jars: wash; bring to a boil and hold in the hot water for at least 10 minutes

5. Why is acid such as lemon juice added to certain foods before canning?

   to lower the acidity sufficiently to allow for water bath canning; for flavoring
6. Why do lids (usually) pop when taken out of a boiling water canner?

The pop occurs when the hot air inside the jar contracts upon encountering cooler air outside the canner, creating a vacuum. The sound usually indicates that the lids have sealed.

7. You decide to can some excess produce from your garden. How do you decide whether to use a water bath canner or a pressure canner? (i.e. What sort of foods are canned in a water bath vs. a pressure canner?)

   A. Water bath canning: used for acidic foods such as fruits and most tomatoes. You can add lemon juice to some foods to lower the pH sufficiently.

   B. Pressure canning: use for non-acidic foods such as most vegetables, meats, liquids. Pressure canning allows for greater temperatures to be reached inside the jar, necessary to destroy bacteria that thrive in the low acid environment.

8. How long will canned food last without spoiling?

Canned food will last indefinitely as long as the seals do not weaken. However, the quality of the foods often starts to deteriorate after about a year even though the food remains safe.