**Lab 2 – Water Quality and Contamination**

**Experiment 1: Drinking Water Quality**

Bottled water is a billion dollar industry in the United States. Still, few people know the health benefits, if any, that come from drinking bottled water as opposed to tap water. This experiment will look at the levels of a variety of different chemical compounds in both tap and bottled water to determine if there are health benefits in drinking bottled water.

**POST-LAB QUESTIONS**

1. **Develop a hypothesis regarding which water sources you believe will contain the most and least contaminants, and state why you believe this. Be sure to clearly rank all three sources from most to least contaminants.**

Hypothesis = I think tap water will have the most contaminants due to high levels of compounds. I think the Dasani bottled water will have the least contaminants due to chemical compounds present in the water from the plant where it was produced. I feel the Fiji Bottled Water will contain about the same amount of contaminants due to chemical compounds.

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| **Table 1: Ammonia Test Results** | |
| **Water Sample** | **Test Results (mg/L)** |
| **Tap Water** | **0 mg/L** |
| **Dasani® Bottled Water** | **0 mg/L** |
| **Fiji® Bottled Water** | **0 mg/L** |

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| **Table 2: Chloride Test Results** | |
| **Water Sample** | **Test Results (mg/L)** |
| **Tap Water** | **0 mg/L** |
| **Dasani® Bottled Water** | **0 mg/L** |
| **Fiji® Bottled Water** | **0 mg/L** |

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| **Table 3: 4 in 1 Test Results** | | | |
| **Water Sample** | **Total Alkalinity**  **(mg/L)** | **Total Chlorine**  **(mg/L)** | **Total Hardness**  **(mg/L)** |
| **Tap Water** | **80 mg/L** | **1.0 mg/L** | **50 mg/L** |
| **Dasani® Bottled Water** | **0 mg/L** | **0.2 mg/L** | **50 mg/L** |
| **Fiji® Bottled Water** | **0 mg/L** | **240 mg/L** | **50 MG/L** |

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| **Table 4: Phosphate Test Results** | |
| **Water Sample** | **Test Results (ppm)** |
| **Tap Water** | **10 ppm** |
| **Dasani® Bottled Water** | **25 ppm** |
| **Fiji® Bottled Water** | **50ppm** |

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| **Table 5: Iron Test Results** | |
| **Water Sample** | **Test Results (ppm)** |
| **Tap Water** | **0.16 ppm** |
| **Dasani® Bottled Water** | **0 ppm** |
| **Fiji® Bottled Water** | **0 ppm** |

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| **Table 6: pH Results** | |
| **Water Sample** | **Test Results** |
| **Tap Water** | **5 pH** |
| **Dasani® Bottled Water** | **3 pH** |
| **Fiji® Bottled Water** | **7 pH** |

1. **Based on the results of your experiment, would accept or reject the hypothesis you produced in question 1? Explain how you determined this.**

Accept/reject = Based on the results, I would accept the hypothesis. I implemented in question. The tap water had more contaminants than the bottled water, for example, Dasani and Fiji.

1. **Based on the results of your experiment, what specific differences do you notice among the Dasani®, Fiji®, and Tap Water?**

Answer = The specific difference between tap water, Dasani bottled water, and Fiji bottled water is the tap water had 0.15 ppm of iron. The bottled water did not have any levels of iron.

1. **Based upon the fact sheets provided (links at the end of this document), do any of these samples pose a health concern? Use evidence from the lab to support your answer.**

Answer = I honestly do not believe that there are any health concern. There was no iron present in the Dasani or Fiji bottled water. However, a low level of iron in the tap water. Phosphate levels in the bottled water was high. The Phosphate levels tested high in both bottles of water. Hardness for all three waters was the same, The Fiji bottled water had much chlorine in it. The tap water tested positive for the most alkalinity. Which leads me to believe all three components of water are safe to drink causing no harm.

1. **Based on your results, do you believe that bottled water is worth the price? Use evidence from the lab to support your opinion.**

Answer = Yes, I believe bottled water is worth the price. I buy Dasani all the time, 24 pack for $4.99. I love when I goes on sale for $3.99. Results prove that tap water is the highest contaminated.

**\*\*NOTE: Be sure to complete steps 1 - 32 of Lab 3, Experiment 1 (the next lab) *before* the end of this week. Lab 3 involves planting seeds, and if the work is not started this week, your plants will not have time to grow and the lab will not be finished on time.\*\***

**FACT SHEETS: Please refer to these to answer Question 3. If you use information from any of these, don’t forget to cite and reference it in APA format in your lab. You are also welcome to use additional or alternative credible resources that you locate online if you wish.**

***Ammonia*** <https://www.wqa.org/Portals/0/Technical/Technical%20Fact%20Sheets/2014_Ammonia.pdf>

***Chloride***

<http://www.who.int/water_sanitation_health/dwq/chloride.pdf>

***Phosphate***

<http://osse.ssec.wisc.edu/curriculum/earth/Minifact2_Phosphorus.pdf>

***Iron***

<http://www.who.int/water_sanitation_health/dwq/chemicals/iron.pdf>

***pH*** <https://www.watersystemscouncil.org/download/wellcare_information_sheets/potential_groundwater_contaminant_information_sheets/9709284pH_Update_September_2007.pdf>

***Alkalinity***

<http://www.freedrinkingwater.com/water_quality/quality1/28-08-alkalinity.htm>

***Chlorine***

<http://www.watertechonline.com/testing-for-chlorine-in-drinking-water/>

***Hardness***

<http://des.nh.gov/organization/commissioner/pip/factsheets/dwgb/documents/dwgb-3-6.pdf>

**References**

Any sources utilized should be listed here in APA format.