**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 = Water from the faucet “tap water” contains the most contaminants, and then bottle water will have the least contaminants added to them.

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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** | **86 mg/L** | **5.0 mg/L** | **50 mg/L** |
| **Dasani® Bottled Water** | **0 mg/L** | **0 mg/L** | **50mg/L** |
| **Fiji® Bottled Water** | **40 mg/L** | **4.0 mg/L** | **120 mg/L** |

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| **Table 4: Phosphate Test Results** | |
| **Water Sample** | **Test Results (ppm)** |
| **Tap Water** | **50** |
| **Dasani® Bottled Water** | **10** |
| **Fiji® Bottled Water** | **100** |

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| **Table 5: Iron Test Results** | |
| **Water Sample** | **Test Results (ppm)** |
| **Tap Water** | **015** |
| **Dasani® Bottled Water** | **0** |
| **Fiji® Bottled Water** | **0** |

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

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 = According to my results from the experiment that I conducted, I would have to reject my hypothesis. The filtered water did clear out, and I don’t think that I would drink it. Even though it has no order it does not meet the standards of my hypothesis and should therefore be rejected.

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

Answer = Based on the results of the experiment the major difference that I see between these is that the Dasani ® is the most impressive of the group. The Dasani® water is the least contaminated and the Fiji® is the most contaminated, which is far from the original prediction through my hypothesis. The other major result showed us that in.

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 don’t think that the ammonia levels do not pose a health risk all three tested at 0, chloride also poses no health risks and the levels within the water samples are within the daily intake suggestions, Phosphate poses a health concern to humans in high levels and the Fiji water tested at 50 while the others only tested at 10 so Fiji water consumed frequently could pose a concern, iron does not pose a health threat and all three tested at 0, Ph does not pose a health risk it just affects taste tap and Fiji tested at 6 while Dasani tested at a 3 in this so no health risk

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 = My opinion is that I don’t believe that bottle water is worth the price. Because base on the results of my finding not all bottle water is the same and depending on where you live, tap water will not be the same either, take Flint Michigan for example. While conducting my experiment tap water and Fiji bottle water has similar contaminants, while the other bottle water tested Dasani had the least contaminants. I think that buying bottle water you are just purchasing a brand and there I would just go in get a filter in drink tap water but make sure that all contaminants are clear in that it is safe to drink.

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

**FACT SHEETS**

***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***

<https://www.safewater.org/PDFS/communitywatertestkit/Water_Quality_Tests.pdf>

***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.