**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 = Bottled water contains the highest amount of contaminants while dasani water contains the least amount of contaminants.

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

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

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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** |  |  |  |
| **Dasani® Bottled Water** |  |  |  |
| **Fiji® Bottled Water** |  |  |  |

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

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

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

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 = I would accept my hypothesis because from my experiments, dasani water seemed to contain the least contaminants while tap water contained the most contaminants

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

Answer = The specific differences are mainly in the taste and colour of the water.Dasani water seems to be very crystal clear,Fiji water is also clear but comparing the two to tap water the tap water is less clearer.On the basis of taste,dasani and Fiji water have no hidden tastes.The tap water contains a far hidden taste that one is able to sense when drinking it.

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 = The tap water seems to be capable of posing a health concern.This is because it might be containing diseases that can cause health problems when taken by human beings.It also contains hidden tastes that mean that it could be containing metals such as fluorine and this could pose problems such as dental fluorosis.

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 bottled water is worth the price.This is because it goes through many treatment processes over and above the minimum required ones and this is important as it ensures that the water that is sold to people is safe.

**\*\*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.