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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 = If all three types of water are tested, tap water will turn out to be the dirtier of the three, while the Fiji water will turn out to be cleanest water type.

Water Sample	Test Results (mg/L)
Tap Water	0
Dasani® Bottled Water	0

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

Table 3: 4 in 1 Test Results			
Water Sample	Total Alkalinity (mg/L)	Total Chlorine (mg/L)	Total Hardness (mg/L)
Tap Water	40	1.0	50
Dasani® Bottled Water	0	0	0
Fiji® Bottled Water	0	0	0

Table 4: Phosphate Test Results	
Water Sample	Test Results (ppm)
Tap Water	10
Dasani® Bottled Water	0
Fiji® Bottled Water	25

Table 5: Iron Test Results	
Water Sample	Test Results (ppm)
Tap Water	0.0
Dasani® Bottled Water	0.0
Fiji® Bottled Water	0.0

Table 6: pH Results	
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Water Sample	Test Results
Tap Water	6
Dasani® Bottled Water	4
Fiji® Bottled Water	7

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

Accept/reject = I would have to reject my hypothesis due to the fact that in all three types of water that were tested, the tap water came back to be equal if not better than the other waters. The hypothesis that I came up with was proven wrong since the Fiji water came back with having the most chemicals and the tap water came back to be the cleanest.

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

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Answer = The differences that I noticed the most was the fact that the tap water came back to being a bit harder than I expected while, the two bottled waters came back to be soft. Tap water seems to be much lower in the chemicals and the bottled water had tons of chemicals added them.

4. **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 = Contaminants could cause potential health problems such as hepatitis, cholera and affect infants with the blue baby syndrome.

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<http://www.epa.gov/region1>

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

Answer = No, bottled water is not worth the price because of the added chemical that are placed in the bottled water. Tap water is healthier to consume then bottled water since there are less chemicals.

****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

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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.



[http:// www.epa.gov/region1](http://www.epa.gov/region1)

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