Lichen Monitoring SO_2 in the Atmosphere

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Abstract

A study of air quality being dependent on lichen species found was conducted at Walker Memorial Academy. Because lichen are bio indicators, they can tell us how good the air is, depending on the lichen type. But to know just how good our air quality is we must dig deeper. Since only certain species can thrive in certain amounts of SO_2, the lichen species that are found at school can give us an idea of how much SO_2 is in the air we breathe. Knowing how much SO_2 is important because high amounts can be harmful to our health. So we asked ourselves, what do species of lichen found mean, how much SO_2 is the air, what does that mean for our air quality.

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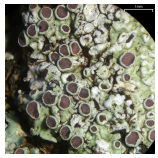
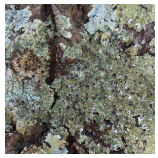
Species of Lichen Found

Date/ Time	Type	Lichen Species	Reference Photo	WMA Photo	SO_2 (µg/ m^3)
02/07/18 09:34	Fruticose	*Ramalina farinacea*			About 60
02/07/18 09:34	Foliose	*Parmotrema perlatum*			About 35
02/07/18 09:34	Crustose	*Ochrolechia africana*			About 35
02/07/18 09:34	Crustose	*Pertusaria pertusa*			40-60
02/07/18 09:34	Foliose	*Dirinaria confusa*			About 35

I. **Research Question:** According to the lichen species found on a tree on our campus, how much SO_2 is in the air, and what does that mean for our air quality?

II. **Hypothesis:** We believe our air quality, at Walker Memorial Academy, is good because when we look back at the types we found, and now looking at the species, we hypothesized that there is not much SO2 in the air and that the air quality is good.

III. Materials and Methods

A. iPad

IV. Data

V. Analysis/Results:

Looking at our data, we can conclude that we do have good air quality due to the types of lichen we found that tells us about how much SO2 is present in the air.

VI. Conclusion

In conclusion, our initial question was answered. We found out that the amount of SO_2 in the air is at a healthy and low amount. Our hypothesis has been confirmed too. The lichen species that were found on the red maple tree told us more specifically the amount of SO_2 is in the air in our area, because only certain species of certain types of lichen can only thrive in a set amount of SO_2 .

VII. Discussion

Why is this such a big deal? It is important to know for our health, the animals' health, nd the overall health of the environment. What is in the air affects our health either in a positive way or a negative way. If you ever want to know how good the air is in an area, look at the lichen. If

the lichen indicate bad air quality, there is always room for improvement. The key to having less SO_2 in the air is burning less fossil fuels.

References

Air Quality and Lichens. (n.d.). Retrieved February 18, 2018, from http://www.air-quality.org.uk/19.php