Research on Lichen Types

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Abstract

A study of lichen on a maple tree was conducted on school campus. Different lichen types were searched for on the tree. The purpose was to find out whether or not we have good air quality here. By using a lichen type chart and a photo of a lichen found on a red maple tree, we were able to identify them and what that meant for air quality.

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I. **Research Question:** Do we have good air quality & what is our air quality according to the lichen? What about the lichen makes it a bio indicator? (Why lichen to determine air quality?)

II. **Hypothesis:** Due to the lichen amount within our school, we believe our air quality is classified as being good quality.

III. Materials:

A. iPad

B. lichen type chart

IV. Procedures:

A. Choose a tree on school campus.

B. Take photo of lichen on the iPad.

C. Take photo of other different looking lichen on the same tree.

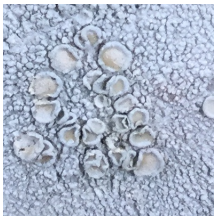
D. Use identification chart to identify lichen types found.

E. Record lichen type.

Lichen Type Chart

Types	Crustose	Squamulose	Foliose	Fruitcose
Image				
Description	Crusty	Scaly	Leafy	Fruity
Air Quality	Only crustose lichen means poor air quality	Only crustose and squamulose indicate semi-moderate air quality	Moderate Air Quality	Very Good Air Quality

V. Data

Date/Time	Lichen on Tree	Type	Air Quality
12/11/17 10:28		Fruticose	Very Good Air Quality
12/11/17 10:28		Crustose	Only crustose lichen means poor air quality
12/15/17 10:20		Squamulose	Semi-moderate air quality
12/11/17 10:28		Foliose	Moderate Air Quality

VI. Analysis/Results: According to the data collected, the Walker campus has very good quality air. Not only does the tree have fruticose lichen, it holds a variety of types of lichen too.

VII. Conclusion: In conclusion, we found out that the air quality on our campus is of good quality according to the types of lichen found on an *acer rubrum*. The question if our air quality is good has been answered and was confirmed by the data collected.

VIII. Discussion: Lichen is a useful air pollution indicator. Different lichen grows according to how much sulphur dioxide is in the air. Just like how different levels of benthic indicate

water quality, so do different types of lichen. Nutrients in the air are being absorbed by lichen. Lichen are sensitive to sulphur dioxide in the air and when there is too much, it can prevent any lichen from growing. In polluted areas with high amounts of sulphur dioxide lichen are barely found. If there is only crustose lichen found, that indicates polluted air quality. If crustose and foliose types are found, that indicates semi-moderate air quality. If fruticose lichen is found, then that means the air is pure and free of pollutants.

References

Environmental change. (2014). Retrieved from http://www.bbc.co.uk/schools/gcsebitesize/science/aqa/interdependence/environmentalchangerev2.shtml?scrlybrkr=08d9bddb

Lichens: More on morphology. Retrieved from http://www.ucmp.berkeley.edu/fungi/lichens/lichenmm.html