Speed of Photosynthesis in Relation to Surface Area

Krohnfeldt , Bryce (School: Estero High School)

I studied and tested the speed of photosynthesis relative to a plant’s surface area. What was found was that plants with a higher surface area can undergo photosynthesis faster than plants with lower surface areas. This is due to the fact that more of the plants chlorophylls(light storing part of the chloroplasts, the organelle responsible for photosynthesis in plants). Other factors include the fact that they can take in greater amounts of water and carbon dioxide because of the increased amount of stomata that are on the surface of the plant. This was done by putting different species of plants in airtight tanks and filling each tank with water. A pH indicator was put into the tanks and the tanks were filled with carbon dioxide(carbonated water has a lower pH than pure water). The time it took for the plants to return from the carbonated pH to the base pH was calculated and converted into time per centimeter squared. This research is important because it can be a step towards solving the global climate crisis by finding and identifying which types of plants take in the most amount of carbon dioxide the fastest and most efficiently.

Awards Won: