

Steroids control gas exchange in plants



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Introduction

Glyphosate-Resistant ‘ Superweeds’ May Be Susceptible To Diseases

1. Observations and questions leading to the experiment:

Weeds growing in the field soil get damaged to various extents when subjected to the. Some weeds are more damaged only to a small extent while others are more heavily damaged. However some other weeds are not affected at all when subjected to the same herbicide. Instead they fare on well and affect the crops.

The questions raised are: What causes the weeds to be susceptible to the Herbicide Glyphosate? Why are some weeds damaged more than others by the herbicide than others? Why are some weeds not damaged at all by the herbicide?

2. The hypothesis: (written as an “ If.... then...” statement).

If weeds susceptible to the Herbicide Glyphosate are grown in the field soil are subjected to the herbicide they will be damaged while those grown in sterile soils will not be damaged.

3. The test:

The researchers, Hallett and Schafer, grew the giant ragweed, horseweed and the common lambsquarter in both field soil and sterile soils. Sterile soils are those that have been subjected to gamma rays to kill the microbes. In each type of soil both strains of weeds that are susceptible and resistant to the herbicide glyphosate were grown during the test.

4. Conclusions drawn: (consider how the experiment was controlled? Use of positive or negative controls? Replication and sample number? Randomization? Other experimental conditions?)

The conclusion drawn was that there was influence by the soil microbes on the response observed on the susceptible as well as the resistant giant ragweed biotypes and also the common lambsquarters which is susceptible, but no effect on horseweed biotype.

The conclusions are valid since the questions raised are answered. Indeed, some weeds that are susceptible and grown in the field soil containing the microbes were damaged; those that are grown on the sterile soils that lack the microbes are not damaged at all. This leads to the conclusion that soil microbes play an important role from minor to major, on how glyphosate is able to affect plants. There are two controls used in this experiment: The use of a resistant strain, the horseweed, which fared well in both soil conditions and the use of sterile soil, which lacked the microbes leading to lack of damage by the herbicide on all the three types of strains.

The experimental conditions were well controlled as long as the sterile soil was kept to avoid mixing with any field soils.

It can also be concluded that size of the weed as determined by the dry root and shoot weight affects the extent of damage on the weed since the parameter affects the surface area exposed to the soil microbes and the herbicide respectively.

The conclusions, hence suggests that the tolerance range to glyphosate observed in weeds and the evolution that results in the bioweed types may be due to the influence by the rhizosphere interactions(. Glyphosate-resistant 'superweeds' may be less susceptible to diseases, n. p.).

State any new questions you have after reading this article. Describe a new experiment to answer these questions.

Future experiment

Questions for a future experiment: What is the effect of adding unsterile soils to growth media when conducting doze response experiments? Will the susceptibility or resistance change with a different herbicide?

Grow the three weeds in both Sterile and field soils. After half the time allocated to the experiment introduce unsterile soil to the sterilized one. Also, have a different set up using a different herbicide apart from the glyphosate.