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Results

 Three variables were analyzed during the investigation: The height of the flower (cm), the length of the longest leaf (cm), and the color of the stem. The three variables were analyzed based off of the type of water that the plants grew in. The plants grew in three types of water: tap water, deionized water, and mineral water. The control variable was tap water; the treatment groups were deionized water and mineral water. Flowers were grown under a 24hours/7days growth light for three weeks. There was no significant difference in average flower height for all flowers after one week (Figure 1). After three weeks, the average flower height of flowers grown in deionized water saw a decrease, while the average flower height of flowers grown in tap water and mineral water saw significant increases (Figure 1). The average flower height for flowers grown in tap water decreased during week two, but significantly increased to the height of flowers grown in mineral water during week three (Figure 1).

 The second variable that was analyzed was the length of the longest leaf. Just like flower height, the average length of the longest leaf for all flowers saw no significant difference during week one (Figure 2). After three weeks, the average length for flower leaves grown in mineral water and tap water significantly increased, and the average length for flower leaves grown in deionized water decreased (Figure 2). The average length for flower leaves grown in tap water decreased during week two, but significantly increased during week three (Figure 2).

 The stem color was analyzed for living and nonliving flowers. All flowers grown in tap water lived except for flower A. Flower A died after week one and the stem turned brown (Table 1). All flowers grown in deionized water lived except for flower D and flower C. Flower D and flower C died after week one; both stems turned brown (Table 2). Flower A and flower B grown in mineral water lived, but flower C and flower D died. After week one, the stem of flower A turned a purple/green color (Table 3). Flower B had a green stem and the stems of flowers C and D turned brown once the flower died. (Table 3).

**Figure 1. Flower Height** The average height of flowers grown in tap water, deionized water, and mineral water over a three-week period. The average height of the flowers grown mineral water was the biggest after three weeks. The error bars for each type of water Is based off of the standard deviation, and how far away the values are from the mean. Deionized water at week two had the highest standard error.

**Figure 2. Length of Longest Leaf** The average length of the longest leaf of flowers grown in tap water, deionized water, and mineral water over a three-week period. The average length of the longest leaf of the flowers grown in tap water was the longest after three weeks. The error bars for each type of water Is based off of the standard deviation, and how far away the values are from the mean. Deionized water at week three had the highest standard error.

**Table 1.** Stem Color of flower after growing three weeks in tap water. The stem of flower A turned brown after week one because it died. All other flowers lived through three weeks and had green stems.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Tap Water  | A | B | C | D |
| Week 1 | Green  | Green | Green | Green |
| Week 2 | Brown | Green | Green | Green |
| Week 3 | Brown | Green | Green | Green |

**Table 2.** Stem Color of flower after growing three weeks in deionized water. The stems of flowers C and D turned brown after week one because they died. All other flowers lived through three weeks and had green stems.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Deionized Water | A | B | C | D |
| Week 1 | Green  | Green | Green | Green |
| Week 2 | Green | Green | Brown | Brown |
| Week 3 | Green | Green | Brown | Brown |

**Table 3.** Stem Color of flower after growing three weeks in Mineral Water. The stem of flower A turned purple, and the stem of flower C turned brown after week one. Flowers B and D lived through three weeks and had green stems.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mineral Water  | A | B | C | D |
| Week 1 | Brown | Green | Green | Green |
| Week 2 | Purple | Green | Brown | Green |
| Week 3 | Purple/Green | Green | Brown | Green |