CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY

Name(s)
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Project Number
S1722

Project Title
The Effects of Recycled Water on the Native Plant Species: Bouteloua gracilis, Juncus patens, and Nasella cernua

Abstract

Objectives/Goals
With the growing demand on a limited water supply, the use of recycled water for irrigation offers both a long term sustainable approach as well as a cost effective plan. However, the effects of recycled water on native plant species are virtually unknown and may therefore pose a risk to the well being of plants. If native plant species are watered with recycled water, then native plants with higher exposures to recycled water are subject to ailments.

Methods/Materials
In this experiment, three water treatments were used to evaluate the responses of the three native plant species, Bouteloua gracilis, Juncus patens, and Nasella cernua. These treatments included recycled water, an alternating combination of recycled water and tap water, and regular tap water. Measurements of height and stem abundance were recorded approximately every one and a half weeks for 14 weeks. The roots# were examined at the end of the fourteen week period, and the roots# wet and dry masses were also determined.

Results
In the end, usage of recycled water on the three native plant species produced mixed results. In the two species Bouteloua gracilis and Nasella cernua, the plants watered with recycled water generally exhibited stunted growth, compared to those treated with tap water. In Juncus patens, however, plants treated with recycled water showed more overall growth.

Conclusions/Discussion
The experiment provided useful information regarding whether or not recycled water is harmful to plants. By applying the results to daily life, it is realistic to presume that recycled water may be used as a sustainable solution to the world#s limited fresh water supply in certain plants species.

Summary Statement
The purpose of this experiment was to determine whether or not recycled (reclaimed) water would harm California native plant species.

Help Received
Mother and Father drove me to Cal State Dominguez Hills, library, and Kinkos several times; Used lab equipment at the Cal State Dominguez Hills under the supervision of Dr. Vadheim; Dr. Vadheim supervised me when transplanting plants and observing them