Growth and Fitness of Bouteloua curtipendula under Exposure to Xanthan Gum Solution

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Due to Xanthan Gum’s gel-like attributes in solution, solution of Xanthan gum is likely to have adverse effects in plants. Bouteloua curtipendula, a prairie grass common in Texas, was used as a test subject due to Xanthan gum’s use in oil drilling; Bouteloua curtipendula was germinated and planted in either a field or a closed system and watered with water or Xanthan gum solution. If Bouteloua curtipendula is exposed to Xanthan gum solution, then growth and overall fitness of the plants will diminish. Plants were compared based on qualitative observations and CO2 output, and a supplementary experiment was run by submerging Apium graveolens in Xanthan gum solution to demonstrate Xanthan gums effects. Plants exposed to Xanthan gum were found to have significantly higher CO2 levels and appeared less healthy overall. In the closed system, a majority of the plants subject to Xanthan gum solution were found dead, and supplementary research showed significant deterioration of Apium graveolens after a single day of exposure to Xanthan gum solution. These results suggest that Xanthan gum negatively impacts the growth and fitness of plants, indicating that Xanthan gum’s use in oil drilling should be further studied to help protect local flora.

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