# The Effect of Hemp Hulls on Foxtail Seed Germination

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## Introduction:

- *Cannabis sativa* hulls or hemp hulls are a byproduct of edible hemp seeds.
- *Setaria faberi* (Poaceae) is commonly known as the Chinese foxtail which is a weed of agricultural fields.
- The purpose of this experiment was to examine the inhibiting effects of hemp hulls on Chinese foxtail seed germination.
- We hypothesize that hemp hulls will inhibit foxtail germination.

## Materials and Methods:

Petri Dish Preparation

- 40 petri dishes (100 mm) were lined with filter paper per treatment.
- There were 4 sample groups: control, 5g, 10g, and 15g hemp hulls/L all with 5 seeds per dish.
- Hemp Hull Solution was prepared by soaking 5g, 10g, or 15g of "Anti-Med" hemp hulls in 1L of water for 24h.
- 5 ml of the solution was placed in each petri dish.

Data Analysis

- Seeds were observed in each sample group after 7 days.
- After germination was recorded, root and shoot length were measured using a caliper.


https://www.bigdweb.com/product/animed+hemp+hulls+1.75+lb.do

https://www.minnesotawildflowers.info/grass-sedge-rush/giant-foxtail

## Results:

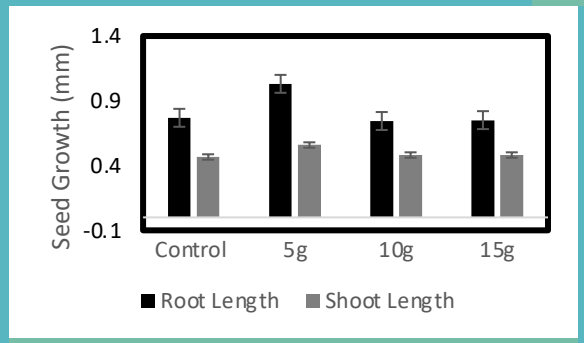


**Figure1.** Trial 1 showing root and shoot length after 7 days. (ANOVA P=0.5692, 0.8764).

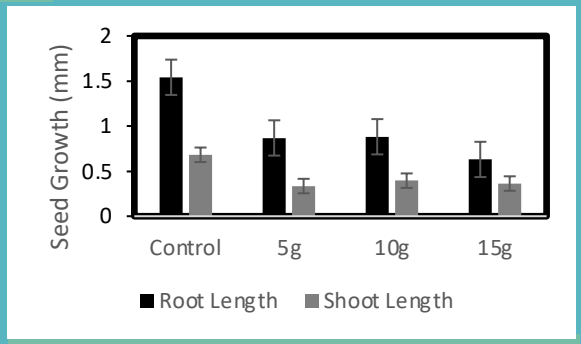


**Figure 2:** Trial 2 showing root and shoot length after 7 days (ANOVA P= 0.0002, 0.0058).

- In Figure 1, it is shown that the hemp hull solution on *S. faberi* seedlings has an insignificant effect on growth.
- Figure 2 illustrates that the hemp hulls significantly decreased seedling growth in Trial 2.

## Literature Cited:

Nitesh Joshi and Ambika Joshi. Allelopathic effects of weed extracts on germination of wheat. Annals of Plant Sciences 5.5 (2016): 1330-1334.

## Conclusions and Future Direction:

- Trial 1 and Trial 2 had contrary results.
- Therefore, additional trials need to be conducted to further support that hemp hulls inhibit seed development.
- *S. faberi* seeds were used to represent garden weeds, with the potential of using hemp hull solutions as a natural herbicide.
- Future studies should investigate effects of hemp hulls on additional species of agricultural weeds.
- Furthermore, research could also be done on long term effects of hemp hulls on soils and plant communities.