

Effect of Microbionic on Seed Germination

Biocraft

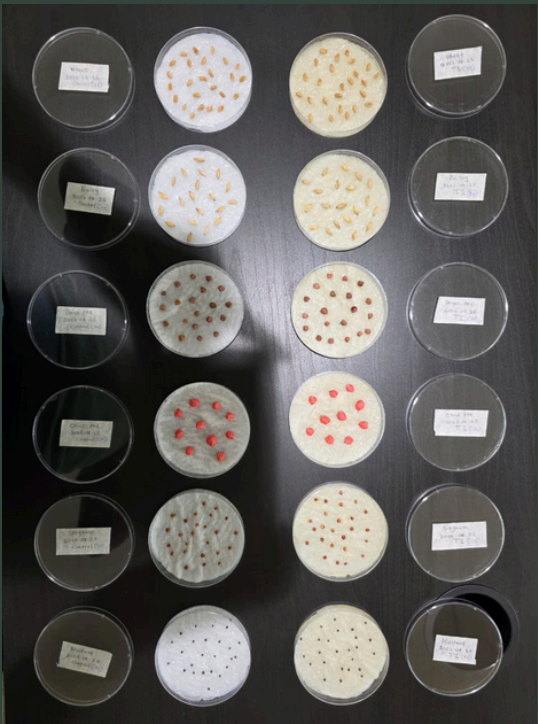
Seed Germination Trial Report
Biocraft Straight or Complex Fertilizers Manufacturing L.L.C.
Abu Dhabi ,United Arab Emirates

Introduction

This trial was to evaluate the effect of Microbionic (10% solution) on the germination of selected crops. The trial aimed to determine whether Microbionic enhances or affects seed germination compared to a control using normal water.

Methodology

1. Petri dishes were layered with filter paper.
2. A uniform volume of distilled water (control) or 10% Microbionic solution (treatment) was added to the Petri dishes.
3. Seeds were placed evenly on the filter paper in each dish.
4. Petri dishes were sealed and incubated at room temperature in a dark environment.
5. Data were collected daily (7 days)



Selected seed types

- Wheat (*Triticum aestivum*)
- Barley (*Hordeum vulgare*)
- Grass pea (*Lathyrus sativus*)
- Chickpea (*Cicer arietinum*)
- Sorghum (*Sorghum bicolor*)
- Mustard (*Brassica juncea*)

Germination Criterion:
Seeds were considered germinated when the radicle length reached ≥ 2 mm.

Data Collection and Analysis:

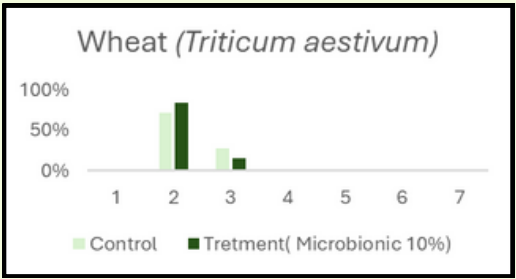
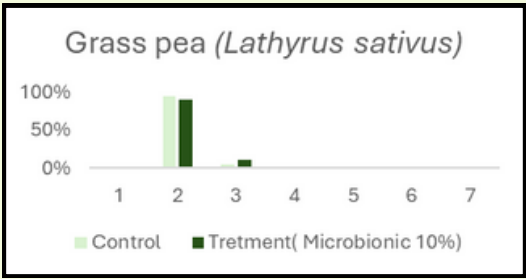
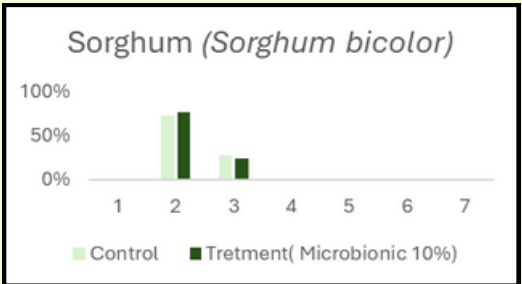
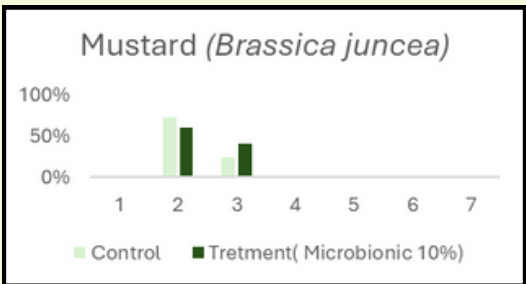
Daily Observation Rule:

- Germination percentage was calculated daily.
- Initial germination rates within two days were also recorded.

Formula for Germination Percentage:

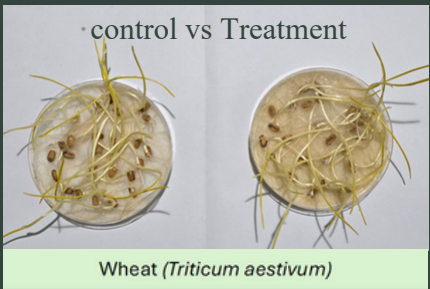
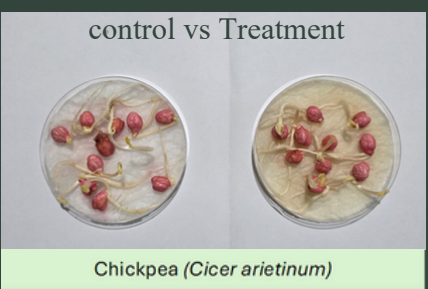
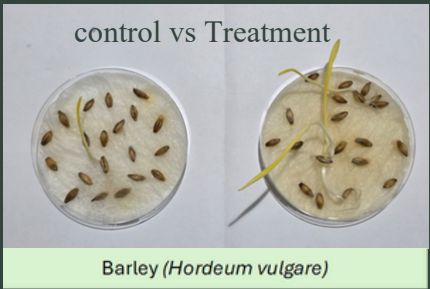
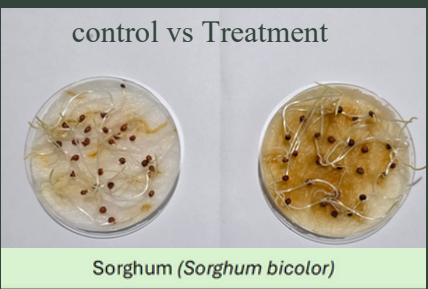
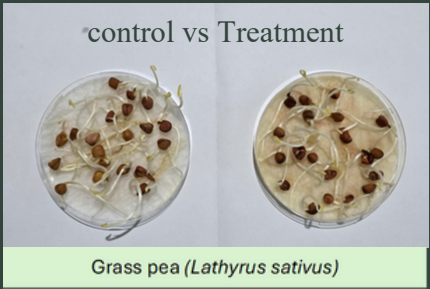
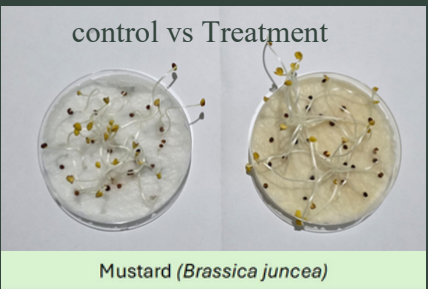
- Germination % = No. of Germinated seeds / Total seeds Number $\times 100$

Figures: Early Germination (within 2 days):
Except for Barley and Chickpea, all crops reached ~50% germination within two days



Results

- Microbionic (10%) did not negatively affect germination in any of the tested crops, proving it is safe for seeds.
- Mustard germination improved slightly from 96% to 100%, showing a positive effect.
- Barley germination increased slightly from 25% (control) to 30% (treatment), indicating that Microbionic may have a stimulatory effect.
- Rapid germination ($\geq 50\%$ in 2 days) was observed in most crops, except for Barley and Chickpea. This suggests these seeds have slower germination kinetics under the conditions tested.



Visual
Observations
After 7 days

Conclusion - Effectiveness of Microbionic:

- Microbionic (10%) did not negatively affect germination in any of the tested crops, proving it is safe for seeds.
- Although most crops germinated quickly in the first two days, the slight improvements in mustard and barley suggest Microbionic may stimulate early radicle development in specific seeds.
- Microbionic shows potential to enhance germination and seedling vigor under optimized conditions, encouraging more detailed studies.

