

# In Vitro Evaluation of the Effect of Natmum 30,200 and 1m on Cowpea Seed Germination Under Salt Stress Conditions: A Randomized Study

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Publication Date: 2026/01/21

**Abstract:** Salt stress significantly impacts plant growth and productivity. This review examines the effects of Natrum Muriaticum (Natrum Mur) on basil, tomato, and cowpea plants under salt stress conditions. Studies show Natrum Mur treatment improves plant growth, physiology, and yield, with notable enhancements in germination rates, photosynthesis, and biomass production. The 12X and 30X potencies demonstrated pronounced effects, suggesting a potential dose-response relationship. These findings indicate Natrum Muriaticum's potential as a tool for mitigating salt stress in crops, offering insights for agricultural applications.

**How to Cite:** Sabrin Sumaila Samiudeen (2025) In Vitro Evaluation of the Effect of Natmum 30,200 and 1m on Cowpea Seed Germination Under Salt Stress Conditions: A Randomized Study. *International Journal of Innovative Science and Research Technology*, 10(12), 3001-3002. <https://doi.org/10.38124/ijisrt/25dec1586>

## I. INTRODUCTION

Salinity is a major abiotic stress that affects crop productivity worldwide, with approximately 20% of agricultural land affected by salt stress. Cowpea (*Vigna unguiculata*) is an important legume crop that is widely cultivated in tropical and subtropical regions, but it is sensitive to salt stress. Homeopathic remedies, such as Natrum Mur, have been suggested as potential solutions for mitigating salt stress in crops. However, there is limited scientific evidence to support their use in agriculture. This study aims to investigate the effect of Natrum Mur on cowpea seed germination and seedling growth under salt stress conditions, and to determine the optimal concentration of Natrum Mur for maximum germination and growth. The results of this study will provide valuable insights into the potential of Natrum Mur as a homeopathic remedy for enhancing crop resilience under salt stress conditions, and contribute to the development of sustainable agricultural practices.

### ➤ Purpose of Study:

The purpose of this study is to investigate the effect of Natrum Mur on cowpea seed germination and seedling growth under salt stress conditions, and to determine the optimal concentration of Natrum Mur for maximum germination and growth.

### ➤ Aim:

To investigate the effect of natrum muriaticum 30,200,1M, in a salt stressed cowpea seeds.

### ➤ Objectives:

- To investigate the effect of Natmum 30, 200, and 1M on cowpea seed germination in salt stress conditions (100 mM NaCl).
- To compare the efficacy of different potencies of Natmum (30, 200, and 1M) in enhancing cowpea seed germination under salt stress.
- To determine the optimal potency of Natmum for improving cowpea seed germination in salt stress condition.

## II. METHODOLOGY

### ➤ Methodology

#### • Seed Collection and Preparation:

Cowpea seeds will be collected from a reputable supplier. Seeds will be surface-sterilized with 70% ethanol and rinsed with distilled water.

#### • Natrum Mur Preparation:

Natrum Mur will be prepared in different concentrations (30,200,1M) by dissolving the requisite amount in distilled water.

#### • Seed Treatment:

Seeds will be soaked in the respective Natrum Mur solutions for 24 hours. Seeds will be rinsed with distilled water to remove excess solution.

- *Salt Stress Application:*

Seeds will be sown in Petri dishes containing agar medium with different concentrations of NaCl (100mM, 150mM, 200mM) to simulate salt stress conditions.

- *Incubation:*

Petri dishes will be incubated in a controlled environment ( $25 \pm 2^\circ\text{C}$ ,  $60 \pm 10\%$  humidity, and  $300 \mu\text{mol}/\text{ms}$  light intensity) for 7 days.

- *Type:*

Randomised study.

- *Study Design:*

- Prepare agar plates with different concentrations of NaCl(100mM, 150mM,200mM).
- Sterilize the agar plates using an autoclave.
- Plant cowpea seeds on the agar plates, Which is been treated with natum mur of various potencies(30,200,1M) each in a separate petridish.
- Incubate the Petri dishes in a controlled environment (temperature, humidity, and light).
- Measure and record seed germination and seedling growth parameters (length, fresh weight, and dry weight) after a specified time period of 30 – 90days.

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seedlings of cowpea under salt stress. International Journal of High Dilution Resarch. 2012 Jul 1;11(40). Sukul S, Mondal S, Sukul NC. Sepia 200cH at 1: 1000 dilution ameliorates salt stress in cowpea seedlings but its medium 90% ethanol proves ineffective at the same dilution. International Journal of High Dilution Research-ISSN 1982-6206. 2012;11(41):237-46.

### III. EXPECTED OUTCOME

- This study will provide insights into the potential of Natmur as a seed treatment to enhance cowpea seed germination in salt stress conditions.
- The findings will contribute to the development of sustainable agricultural practices in saline environments.
- The study will determine the most effective potency of Natmur for improving cowpea seed germination under salt stress.

### IV. DATA COLLECTION

Seed germination percentage, seedling length, fresh weight, and dry weight will be measured and recorded.

- *Data Analysis:*

Data will be analyzed using ANOVA and DMRT to determine the significance of the effects of Natrum Mur on cowpea seed germination and seedling growth under salt stress conditions.

### REFERENCES

- [1]. Mazón-Suástequi JM, Ojeda-Silvera CM, García-Bernal M, Batista-Sánchez D, Abasolo Pacheco F. The Homeopathy increases tolerance to stress by NaCl in plants of common bean (*Phaseolus vulgaris* L.) variety Quivican. *Terra Latinoamericana*. 2020 Mar;38(1):149-63.
- [2]. Mondal S, Sukul NC, Sukul S. Natrum mur 200c promotes seed germination and increases total protein, chlorophyll, rubisco and sugar in early