

# EFFECT OF MAGNETISM ON SEEDLING GROWTH OF *HORDEUM VULGARE*

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**Abstract:** Present research study deals with the effects of magnetism on the seedling growth and germination of barley (Joan). In this study ninety barley seeds were selected for uniformity (criteria being size and color) and then seed were sterilized in 1% mercuric chloride solution and then after proper washing with distilled water, placed in Petri plates. One set of Petri plates was placed in between two bar magnet with there north ends facing the seeds. Similarly in another Petri plates sets magnet was placed with south ends facing the plate. Side by side a control *set also* maintained observation done at 3rd, 5th, & 7th day of radicle emergence. Result shows that bar magnets can influence the seed germination and seedling growth of barley. Results show that N-N bar magnet promotes more growth as compared to S-S bar magnet and control.

**Keywords:** *Hordeum vulgare*, Magnetism, Seedling growth

## INTRODUCTION

Magnets and magnetism have played an important role in man's scientific development ever since they were first discovered. They have always helped the brave sailors who went on the dangerous sea voyages. The main aim of the research study was to observe the effect of magnetism on the seed germination and seedling growth of barley. Seed germination can take place in presence of water, oxygen & suitable temperature and light. Many environmental factors can affect seed germination like light intensity, day length, night length, light color, water, water quality, gravity, crowding, temperature, nearby plants (by chemical agents), genetics, oxygen availability, seed condition, seed age, seed coat condition, seed size and other environmental conditions can have measurable effects on the seed germination. Gardeners, worldwide, have a number of ideas of other environmental factors that may influence germination such as the phase of the moon, tidal effects, and planting with companion seeds.

Large number of workers carried research work on the effect of magnetic & electric field on seed germination and seedling growth (Martinez - 2000, Martinez - 2001, Pietruszewski – 2001, Lynikiene S – 2003 and others).

## MATERIALS AND METHOD

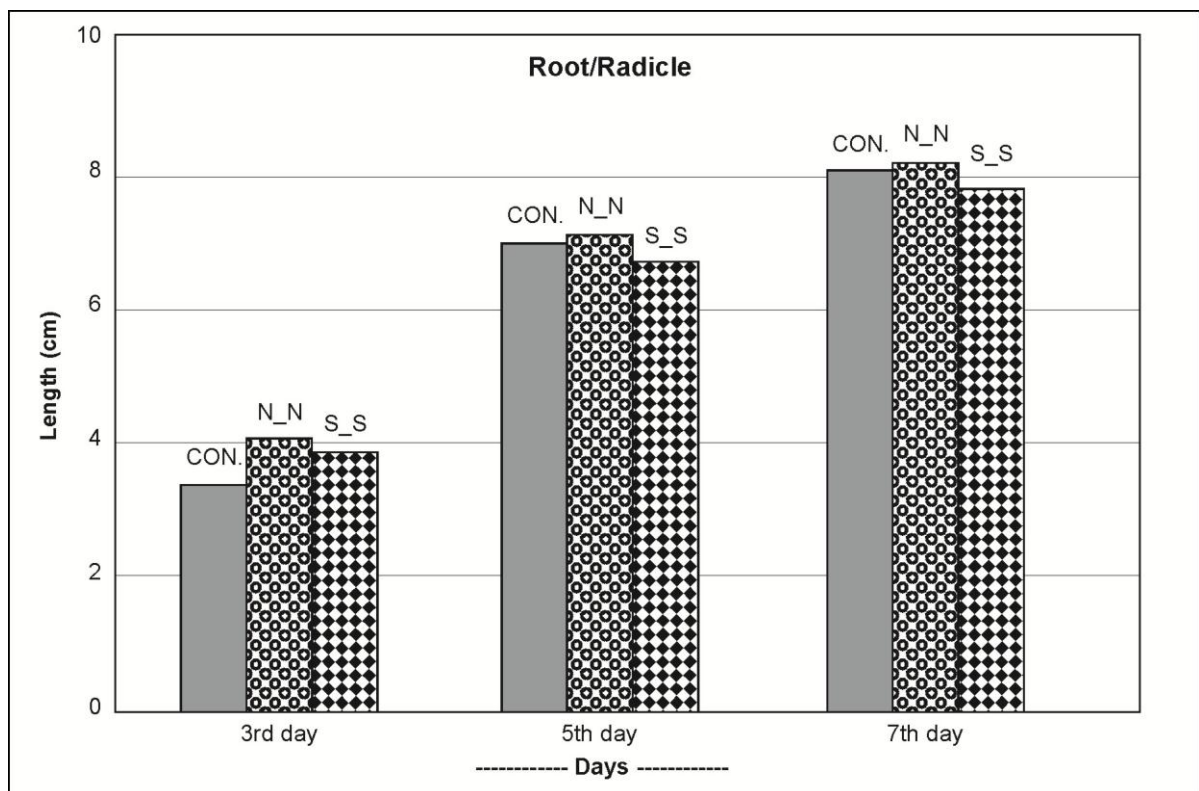
First of all around 90 healthy and identical barley seeds were selected for gennination. The seeds were then soaked in the solution of mercuric chloride (1%) for the purpose of disinfection. There after the seeds were thoroughly rinsed with distilled water and then soaked in the water for 24 hours to facilitate the early germination. The seeds were then placed in 9 Petri plates.

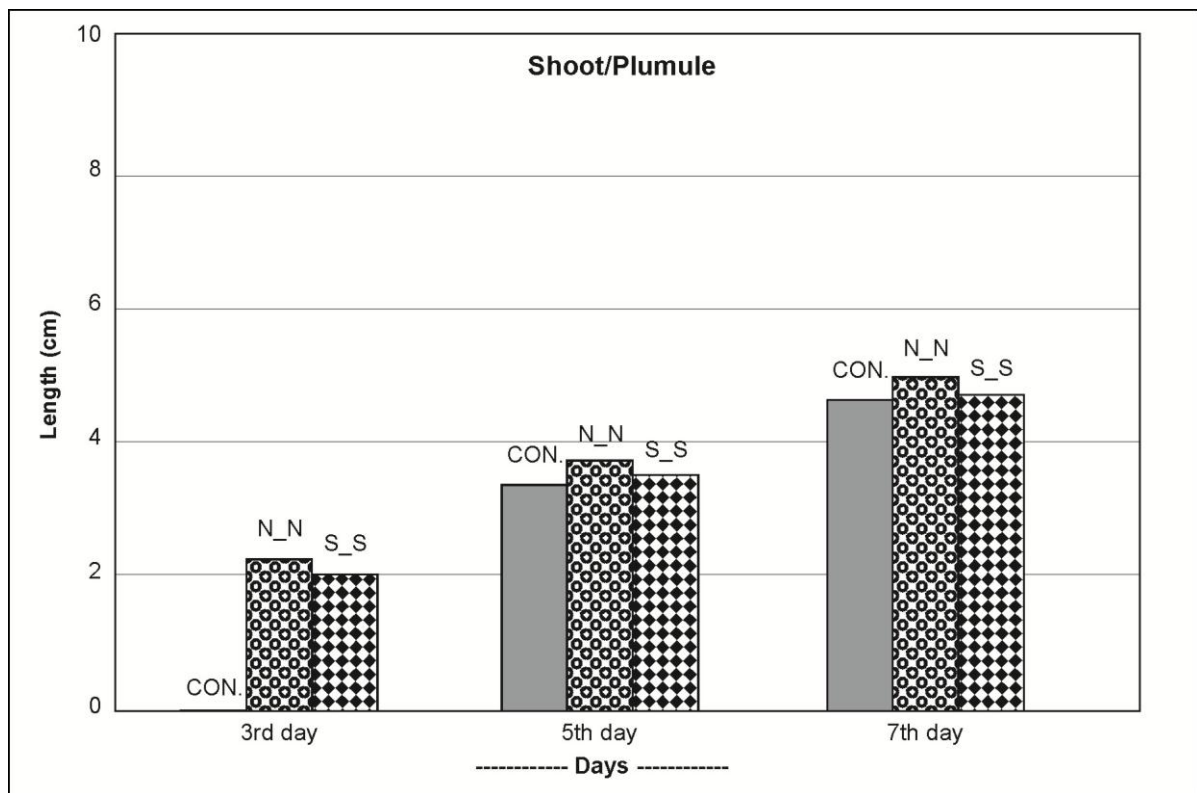
One set of three Petri plates was placed in between two bar magnets with their north ends facing the seeds. While the other set was placed similarly but with the South ends of the magnets facing the plates. While the third set was placed away from the magnets so as to skip any effect of magnetism induced by the magnets (control).

After 3rd days first set of readings was taken. The fresh weight of radicle (Root) and plumule (Shoot) was taken and the mean value was calculated. This was done for all the three sets. Another three sets of readings were taken on 5th and 7th day respectively. Each day material was dried in the hot air oven and the dried weight of both the sets for all three days was taken. All the readings are shown with the help of table and graph.

**Table.** Showing effect of Bar Magnets on Seedling Growth of Barley (*Hordeum vulgare*)

Treatment	Root/Radicle			Shoot/Plumule		
	Length (cm)	Fresh weight (mg)	Dry weight (mg)	Length (cm)	Fresh weight (mg)	Dry weight (mg)
	3rd day after radicle emergence					
Control	3.3	4	1	0	0	0
N-N Direction Magnetic field	4	6	2	2.2	1	0
S-S Direction Magnetic field	3.8	4	1	2	1	0
5th day after radicle emergence						
Control	6.9	21	5	3.3	19	3
N-N Direction Magnetic field	7	25	7	3.6	20	4
S-S Direction Magnetic field	6.6	24	6	3.4	18	3
7th day after radicle emergence						
Control	8	33	9	4.5	31	7
N-N Direction Magnetic field	8.1	37	11	4.8	32	8
S-S Direction Magnetic field	7.8	35	9	5	31	9

**Fig 1.** Magnetic response Growth Curve (Root/Radicle)

**Fig 2.** Magnetic response Growth Curve (Shoot/Plumule)

## RESULTS

Results shows that seedling growth of various parts promoted in the presence of magnetic treatment as compared to control. Observation further shows that growth is promoted more when magnet placed in N-N direction as compared to control.

Results further shows that growth is also promoted more under North magnetic field then the South magnetic field. Our result are shown with the help of Table, Graph & Photographs.

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