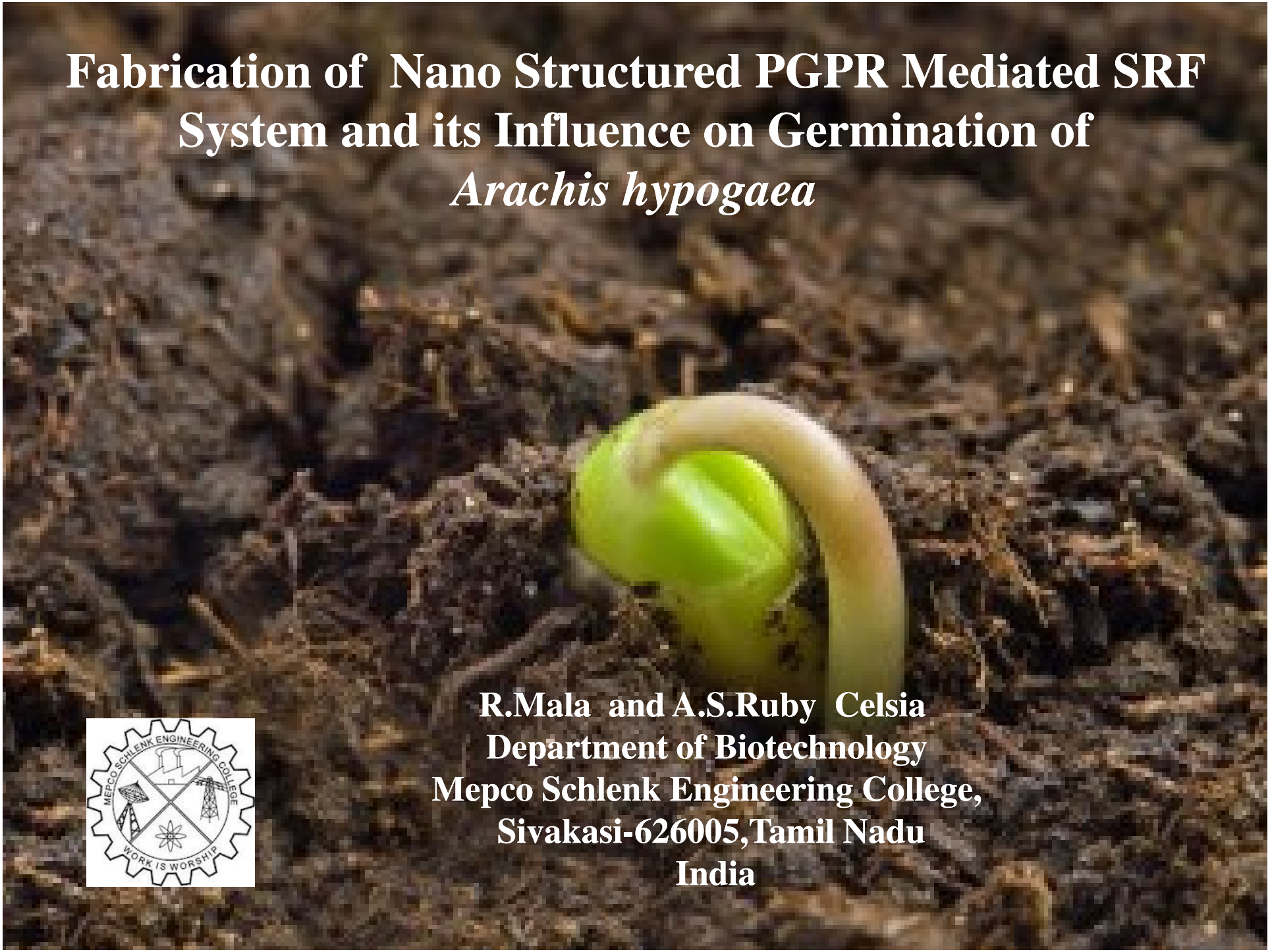
Fabrication of Nano Structured PGPR Mediated SRF System and its Influence on Germination of *Arachis hypogaea*

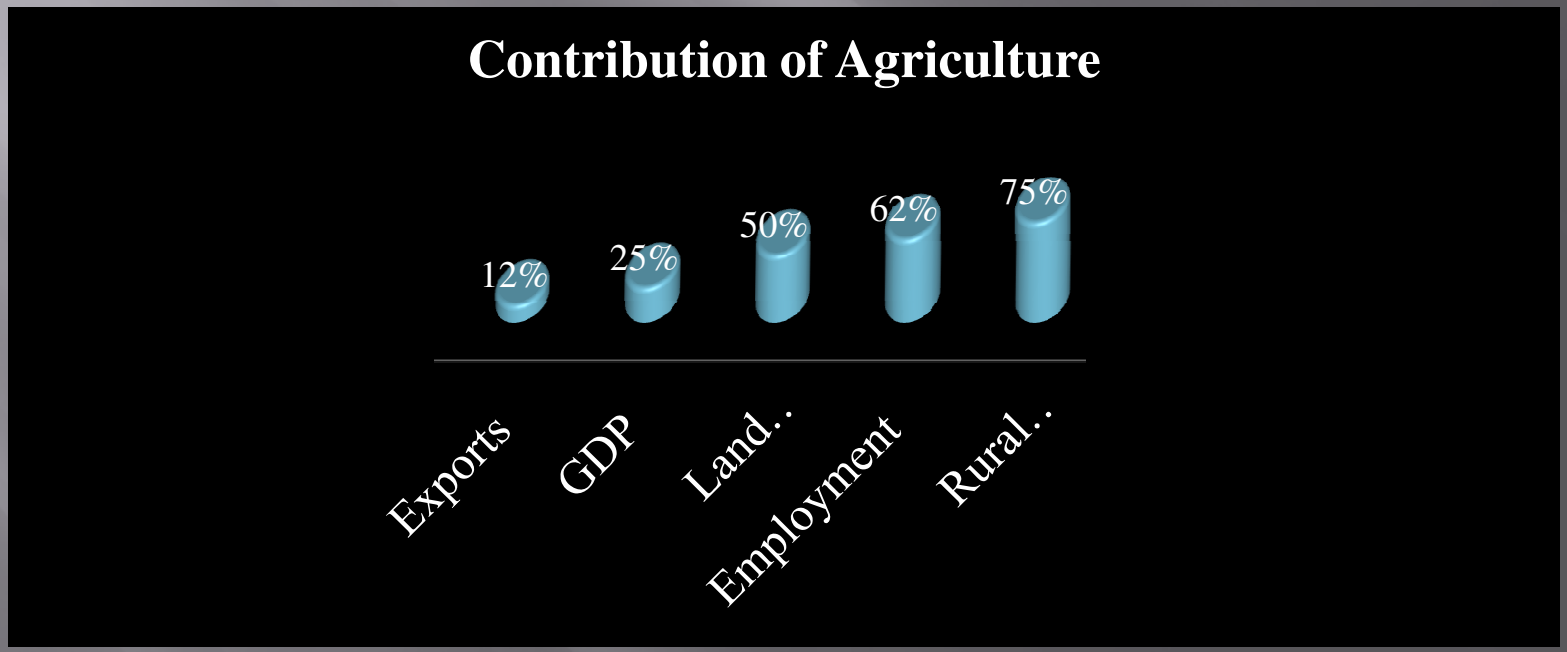


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INTRODUCTION

❖ Agriculture is the backbone of our Country serving millions of people.

❖ India ranks 2nd in the world's agricultural production.



POPULATION AND FOOD DEMAND



❖ To feed the estimated population of 1.36 billion by 2025, it is necessary to increase the productivity by 100% from present level .

❖By 2000, about 163 million hectares of land was considered as arable land and it was reduced to 157 million hectares in 2011.

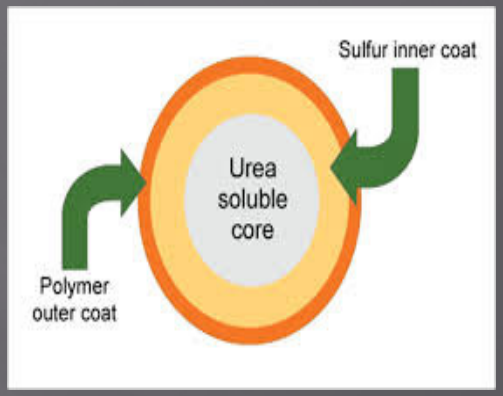
AGRICULTURE PRODUCTIVITY

Main issues regarding reduction in the productivity are

- Extensive use of chemical fertilizers .
- Intensive farming and agricultural practices.
- Urbanization and Industrialization.

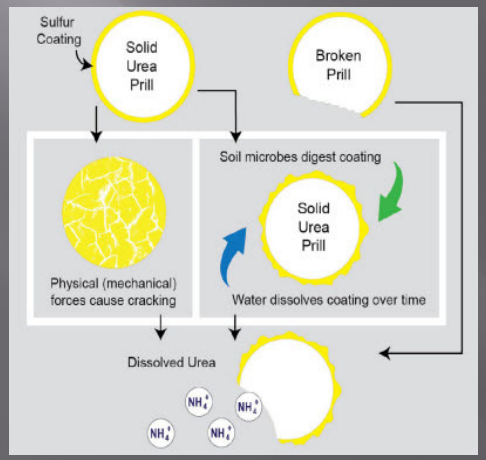
CURRENTLY AVAILABLE SRFS & THEIR LIMITATIONS

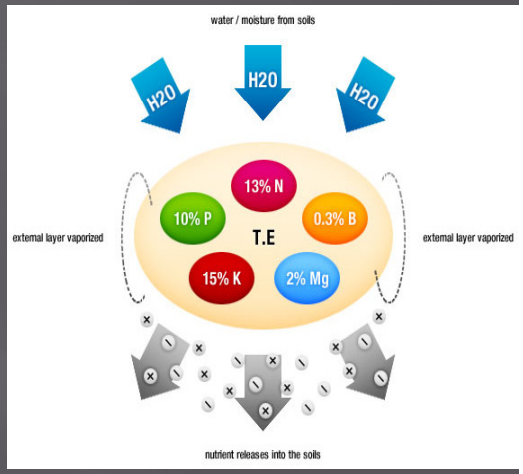
- Urea – Formaldehyde
- Sulphur – coated
- Polymer – coated
- Bio inhibitors



LIMITATIONS

- Environmental concerns
- Affects PGPR population
- Limited availability





OBJECTIVES

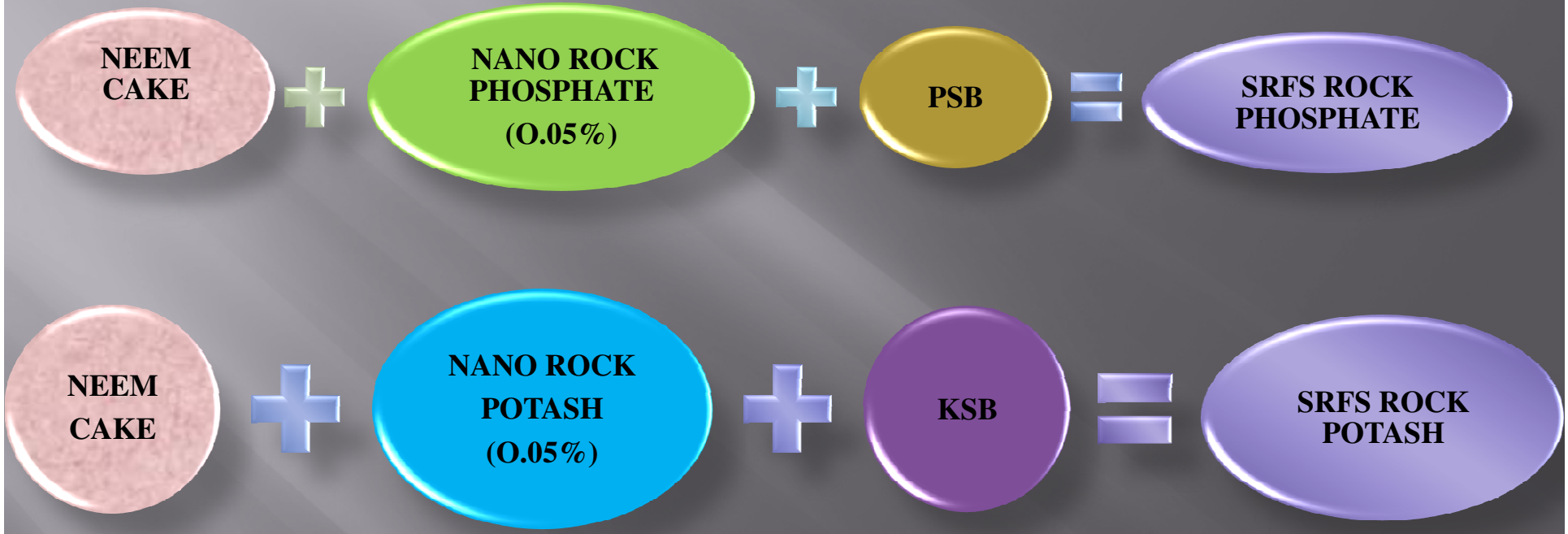
To develop a Slow Release Fertilizer System (SRFS) with

- ❖Nano structured Rock phosphate and Phosphate Solubilizing bacteria
- ❖Nano structured Rock Potash and Potash Activa

and examine their effect on germination of *Arachis hypogaea*

MATERIALS AND METHODS

FABRICATION OF NANO STRUCTURED SRFS



Sonication -30 minutes ,
0.5 cycles ,
80 amplitude

	TREATMENT
T1	Water
T2	Neem cake
T3	Neem cake pellet
T4	Phosphate solubilising bacteria control-PSB
T5	Potash solubilizing bacteria control –KSB
T6	Rock Phosphate
T7	Rock Potash
T8	Neem cake and phosphate solubilizing bacteria
T9	Neem cake and potash solubilizing bacteria
T10	Neem cake and Rock Phosphate
T11	Neem cake and Rock Potash
T12	SRFS – Rock Phosphate
T13	SRFS – Rock Potash

GERMINATION CHARACTERISTICS

- **Seed germination (%)**

$$\frac{\text{Number of seeds germinated}}{\text{Total number of seeds}} \times 100$$

- **Mean Germination Time**

$$MGT = \Sigma n.D / \Sigma n$$

Where

n= number of seeds newly germinated at time D;
D= days from the beginning of the germination test,
Σn= final germination

RESULTS AND DISCUSSION

SRFS PELLET

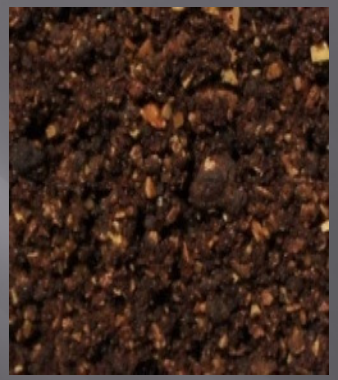


RP/Rpot

Sonication



Nano RP/Rpot



Neem cake



Pelletizer

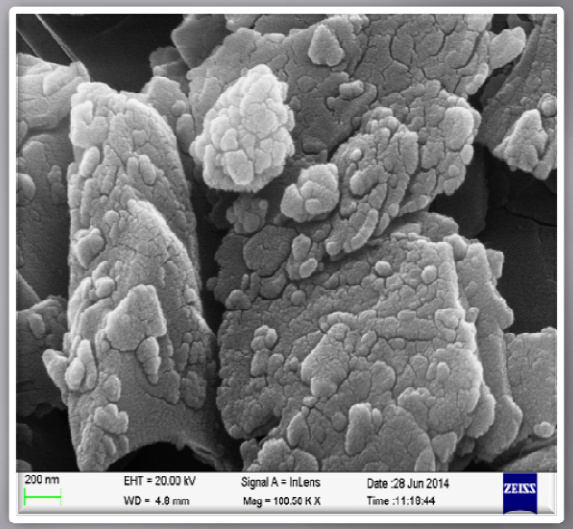


Neem Oil

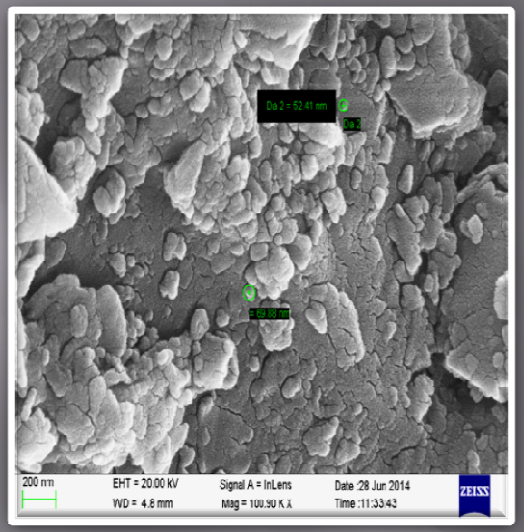


SRFS Pellet

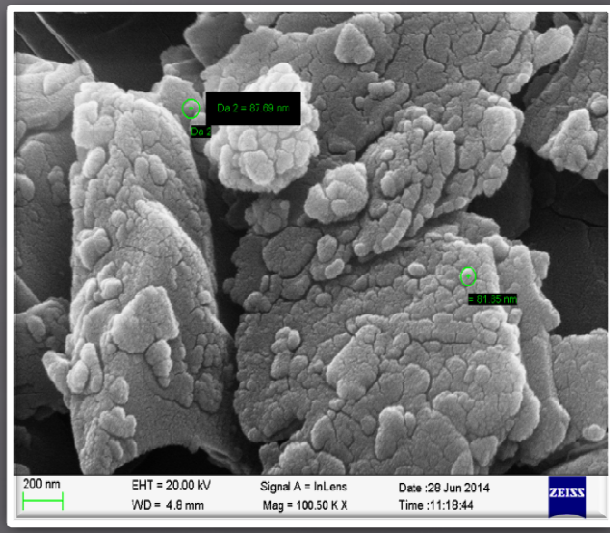
NANO STRUCTURED SRFS



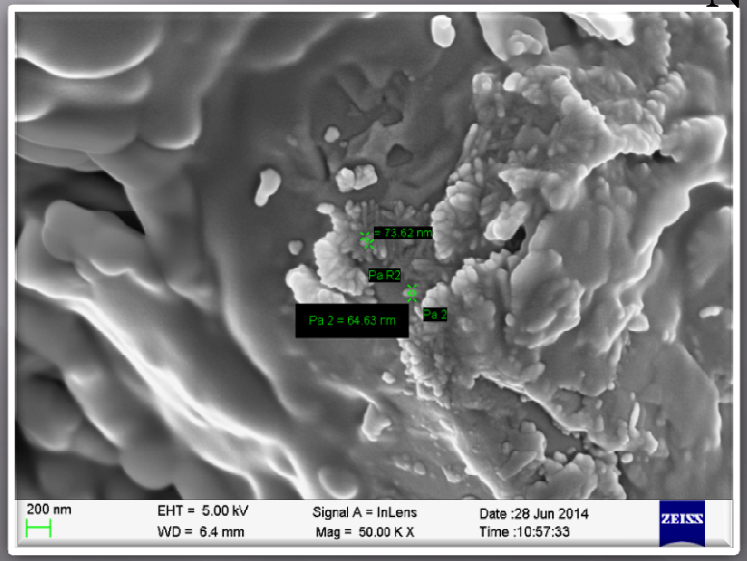
Neem cake



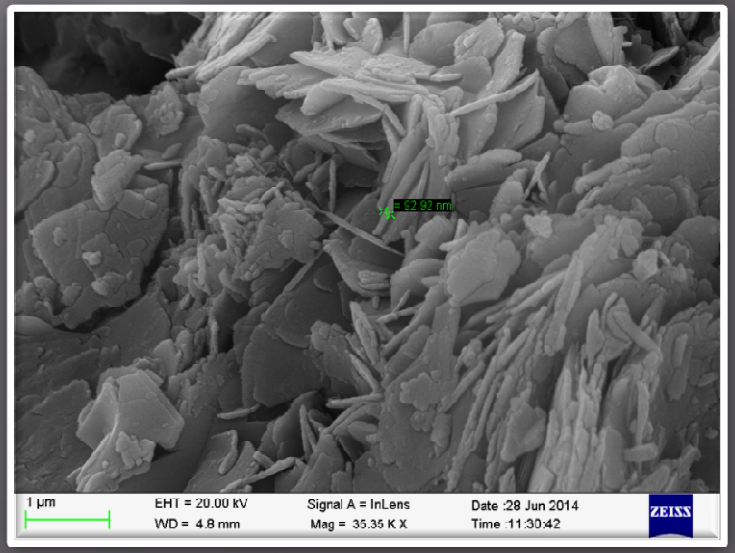
NC NRP



NC NRPot

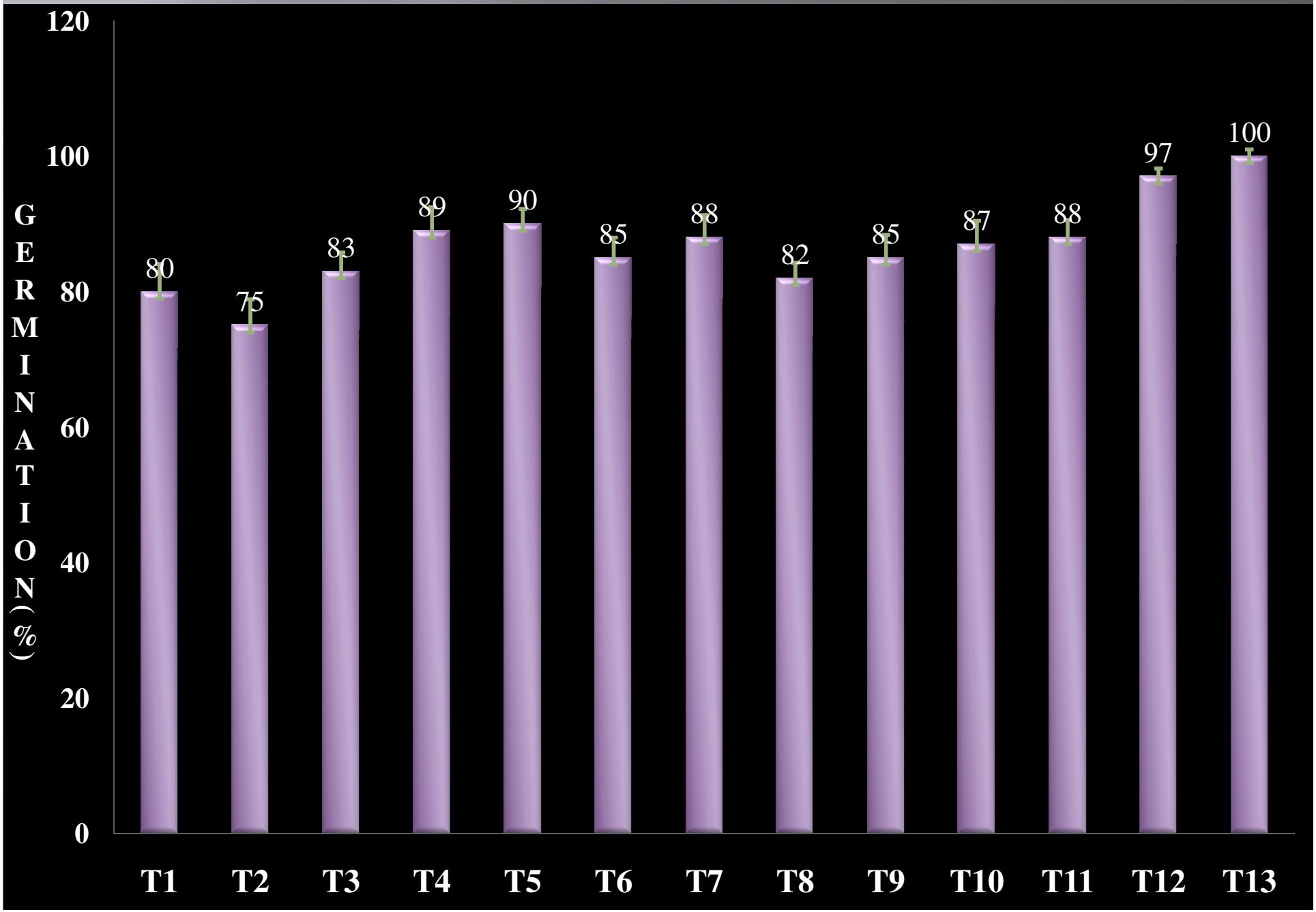


SRFS RP

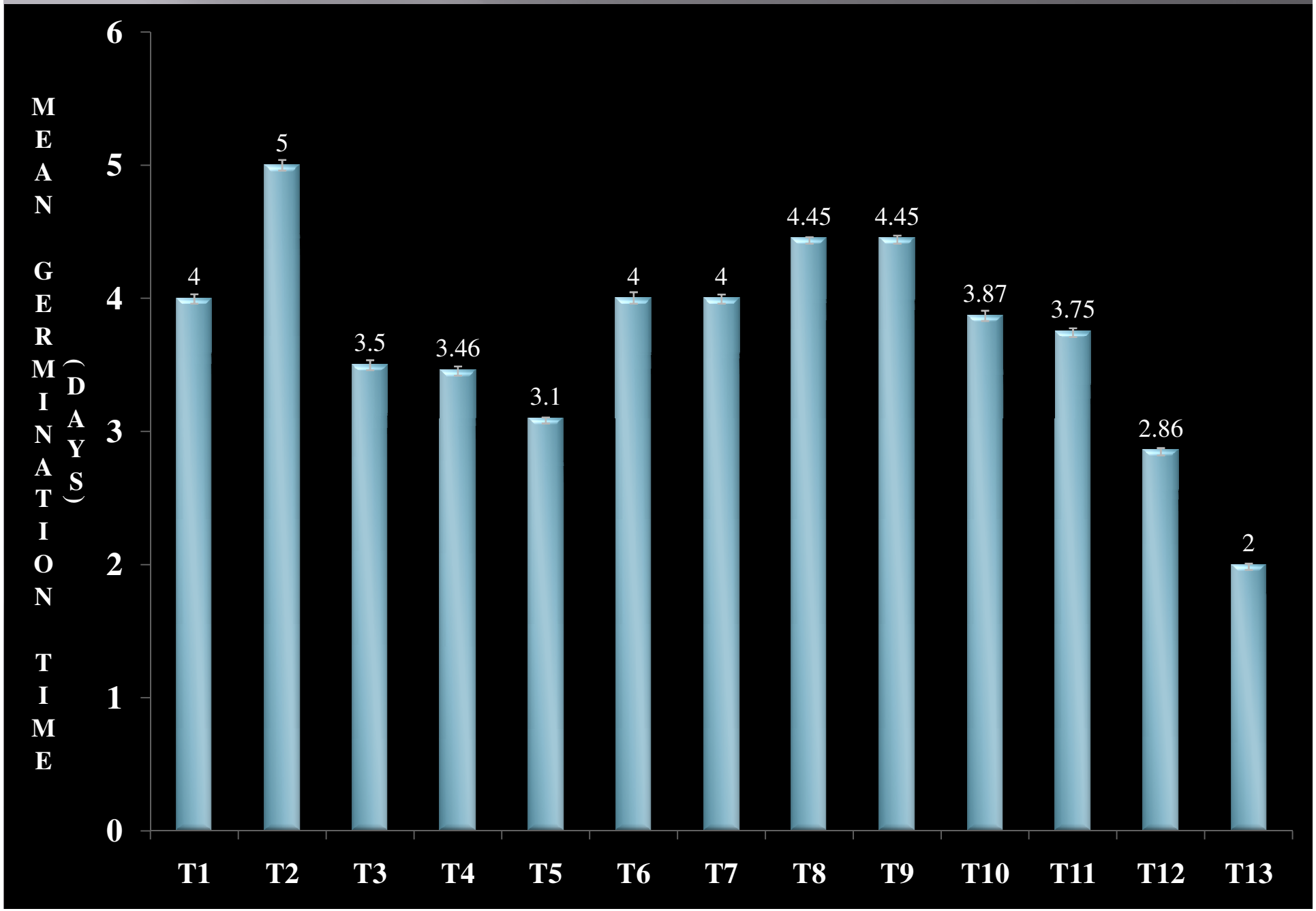


SRFS RPot

Influence of SRFS on Germination of *Arachis hypogaea*



Influence of SRFS on MGT of *Arachis hypogaea*



Influence of SRFS on Germination of *Arachis hypogaea*



WATER



BIOLOGICAL CONTROL



CHEMICAL CONTRO



SRFS ROCK PHOSPHATE



SRFS ROCK POTASH

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THANK YOU