

# EFFECT OF DRUM PRIMING WITH 24-EPIBRASSINOLIDE ON SEED GERMINATION, SEEDLING GROWTH AND ANTIOXIDANT ENZYMES SYSTEM OF BELL PEPPER SEEDS (*Capsicum annuum* L.)



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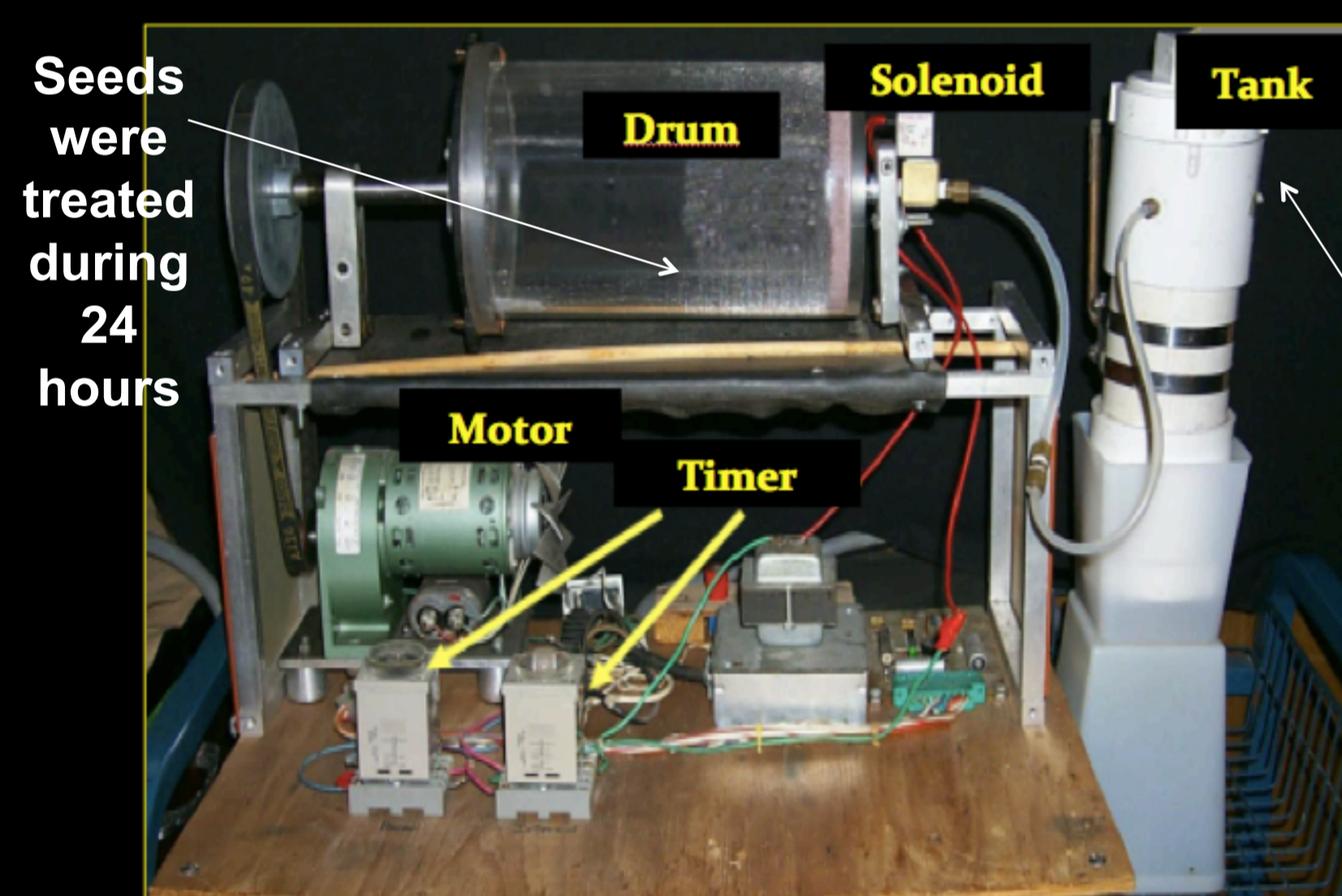
## Introduction

- Drum Priming is a special seed priming method in which seeds are hydrated to a predetermined humidity content by placing them inside a horizontal rotating drum (ROWSE, 1996);
- Combining drum priming with bioregulators that have been shown to be active in seeds may lead to further enhancement of germination and stand establishment;
- 24-epibrassinolide is a new type of plant growth regulator used in agriculture that appears to cause physiological and biochemical changes in seeds such as increase on seedling growth and activity of enzymes responsible for the removal toxic substances from the seeds (KUMAR et al., 2010).

## Objective

Evaluation of bell pepper seed performance after priming with 24-Epibrassinolide by a drum priming system.

## Material and Methods



Drum Priming System

24-Epibrassinolide solution  
 (It was distributed over the seeds each four hours of interval)

Germination tests

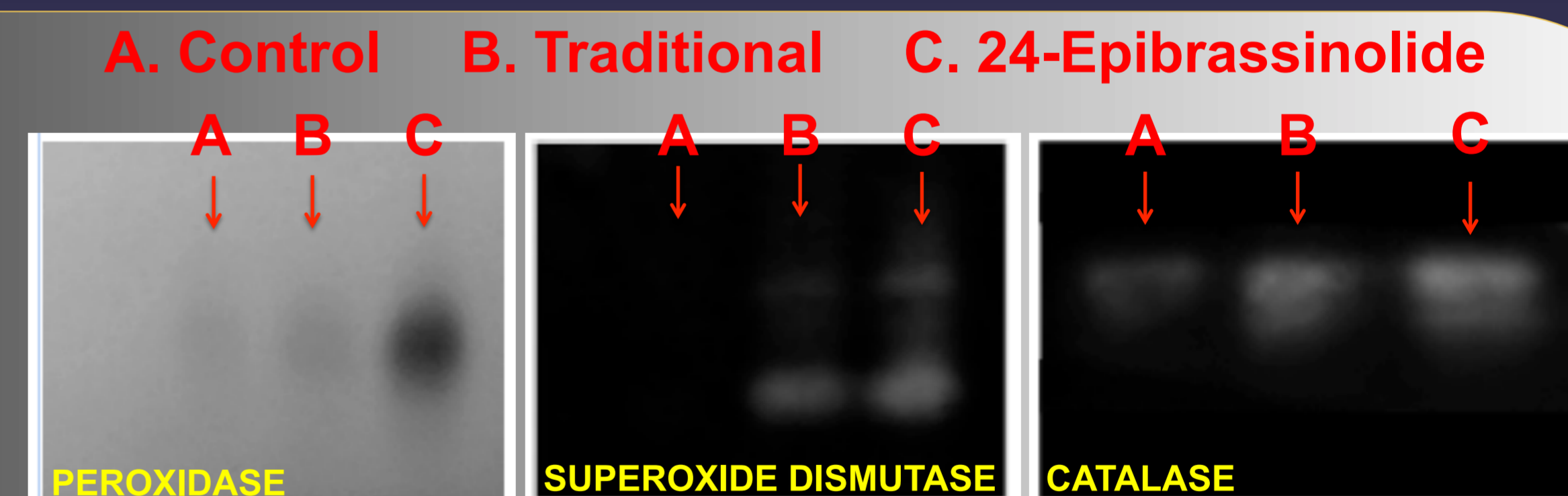
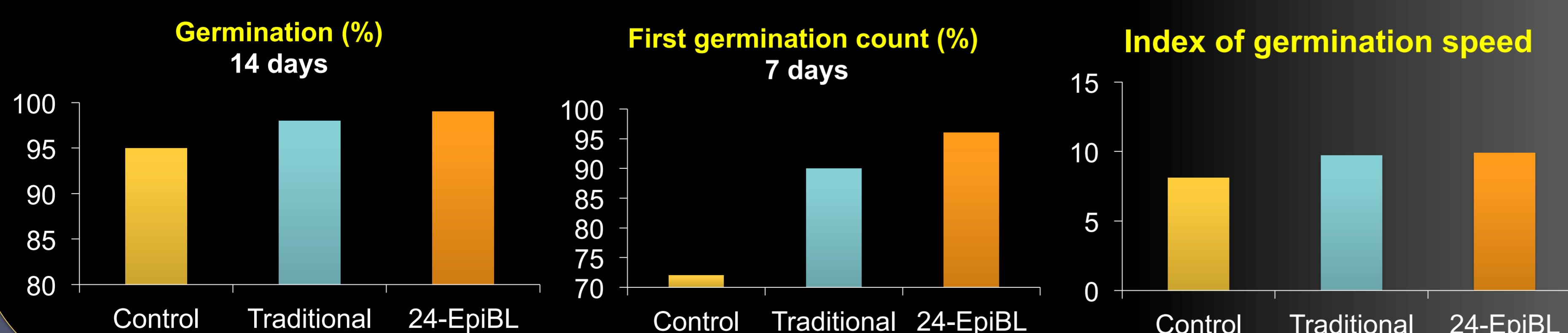
Seed Vigor Imaging System  
**SVIS® software**

Activity of antioxidant enzymes  
**Non-denaturing PAGE**  
 (Polyacrylamide Gel electrophoresis)

- **7 days:** First germination count
- **14 days:** Standard germination test
- **Daily count:** Index of germination speed
- Seed vigor index
- Seedling length
- Uniformity index
- Peroxidase
- Superoxide dismutase
- Catalase

## Results

Several advantages were achieved in the drum priming by use of 24-Epibrassinolide compared with the traditional procedure (without 24-Epibrassinolide). The germination time was reduced followed by a seedling growth increase. Concomitantly, the enzymatic activity has also been improved, however, showed different intensity of response for each enzyme.



## Conclusions

The drum priming system with 24-Epibrassinolide demonstrates viability for commercial treatment of bell pepper seeds. A variety of beneficial effects can be acquired such as higher germination speed, seedling development, and activity of antioxidant enzymes.

## References

- ROWSE, H.R.. Drum Priming – A non-osmotic method of priming seeds. *Seed Science and Technology*, v.24, p.281–294, 1996.
- KUMAR, M.; SIRHINDI, G.; BHARDWAJ, R.; KUMAR, S.; JAIN, G. Effect of exogenous H<sub>2</sub>O<sub>2</sub> on antioxidant enzymes of *Brassica juncea* L. seedlings in relation to 24-epibrassinolide under chilling stress. *Indian Journal of Biochemistry and Biophysics*, v.47, n.6, p.378-382, 2010.