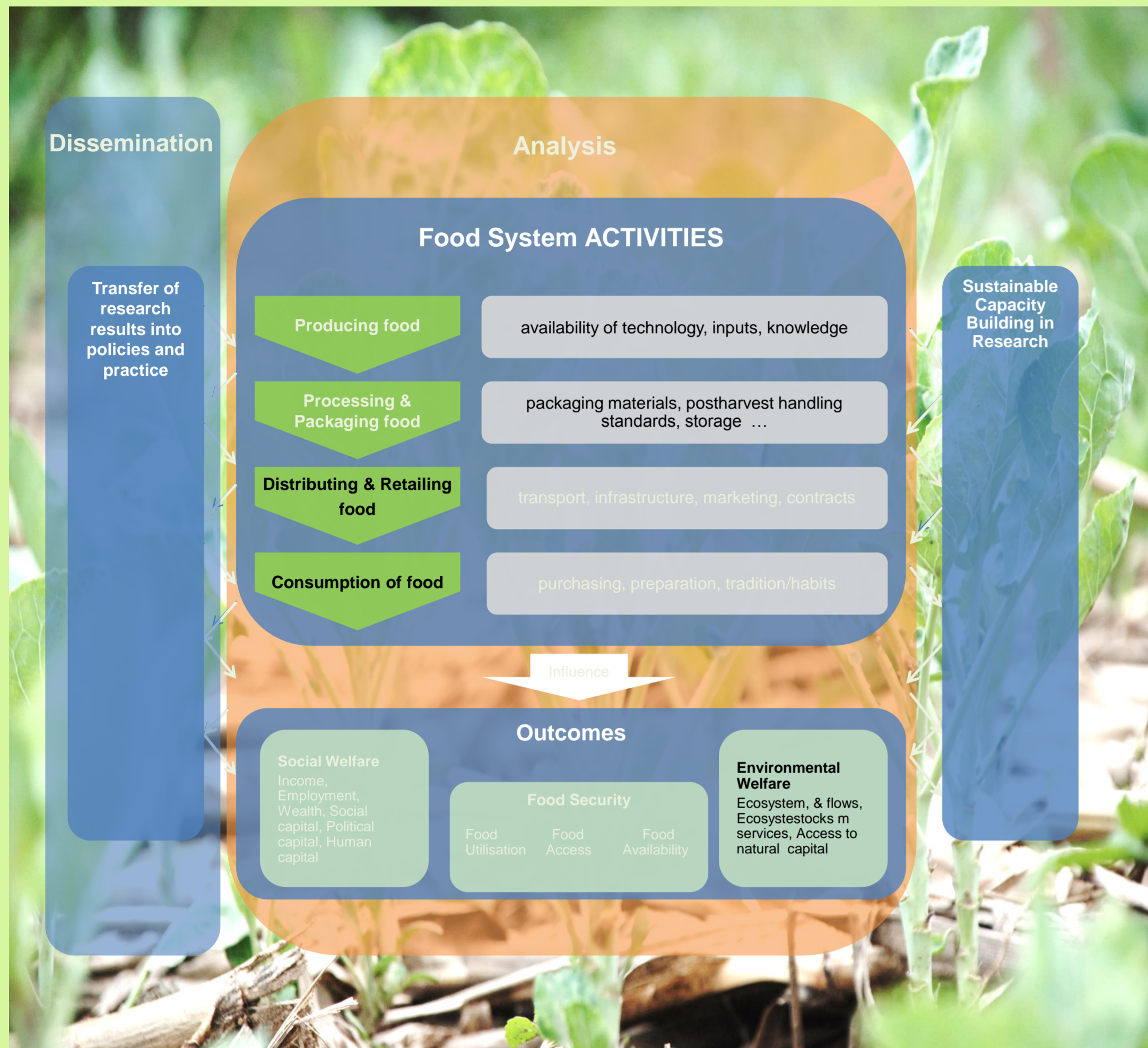


EFFICACY OF *Bacillus subtilis* AND *Trichoderma asperellum* AGAINST DAMPING OFF IN ETHIOPIAN KALE AND AFRICAN NIGHTSHADE

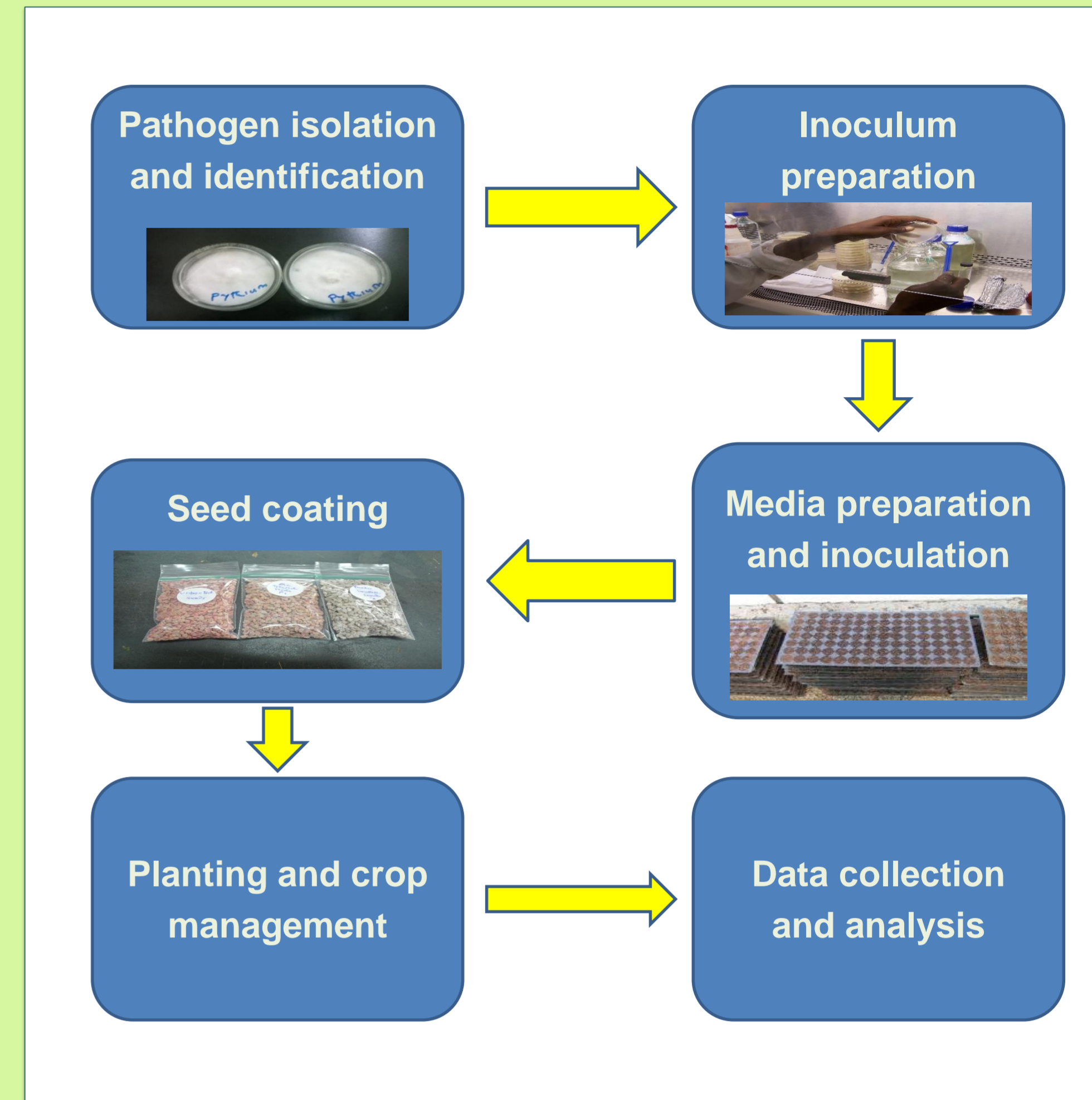
HORTINLEA Framework



INTRODUCTION

- African nightshade and Ethiopian kale are widely produced and consumed in various parts of Africa.
- They are plagued by a large number of diseases
- Damping off causing up to 30% significant yield loss
- The use of synthetic chemical fungicides have adverse effect on environment and human health
- To evaluate efficacy of the *Bacillus subtilis* and *Trichoderma asperellum* against damping off disease.

MATERIALS AND METHODS



RESULTS

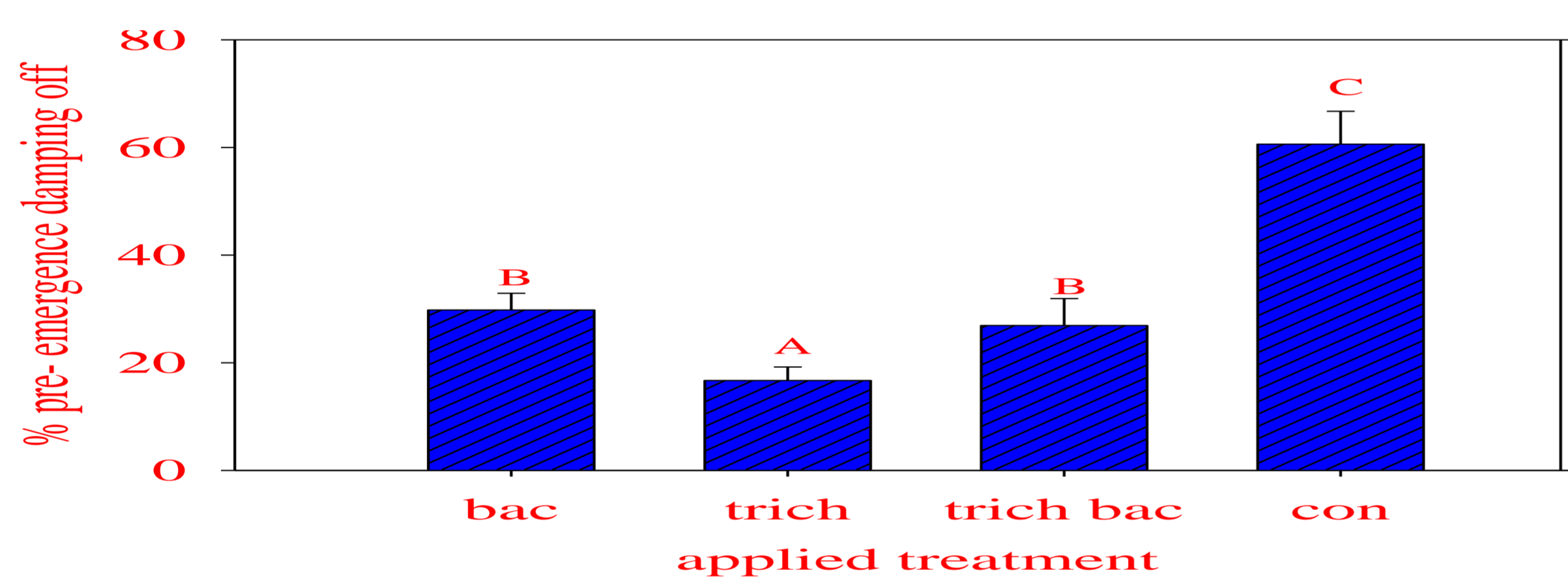


Fig 1: Means and standard error of the arcsine square root transformation of pre-emergence damping off African nightshade

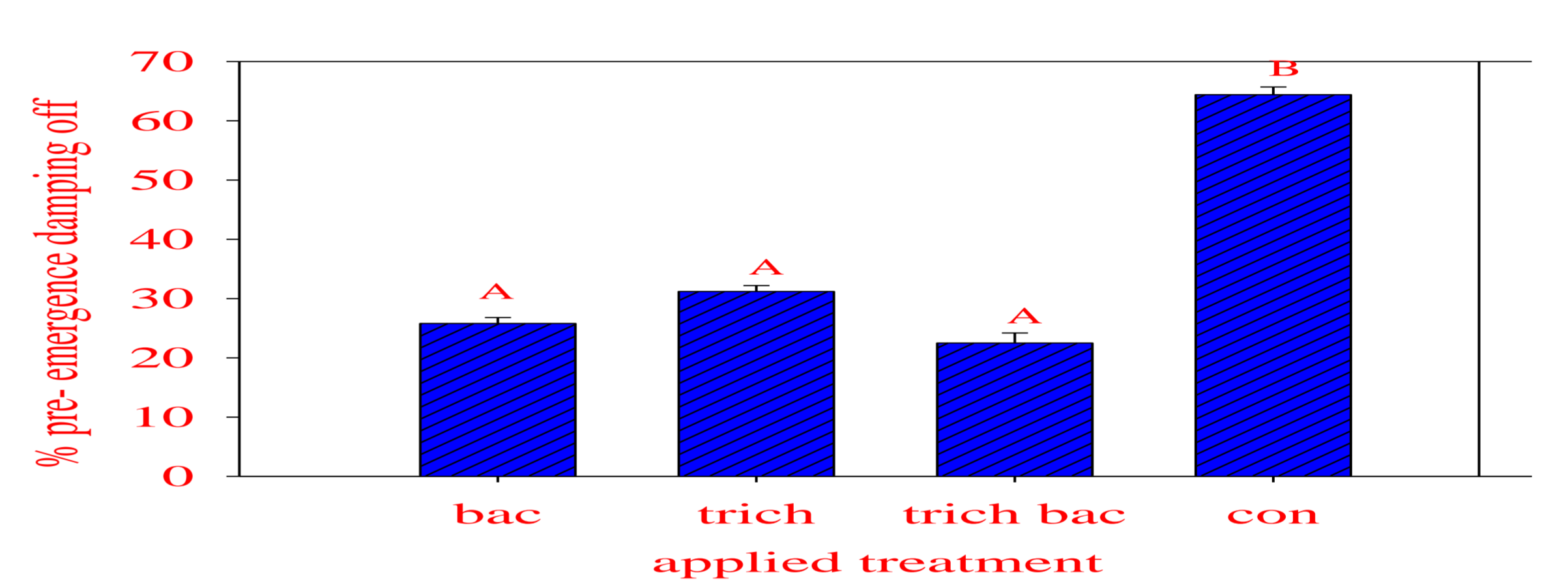


Fig 1: Means and standard error of the arcsine square root transformation of pre-emergence damping off Ethiopian kale

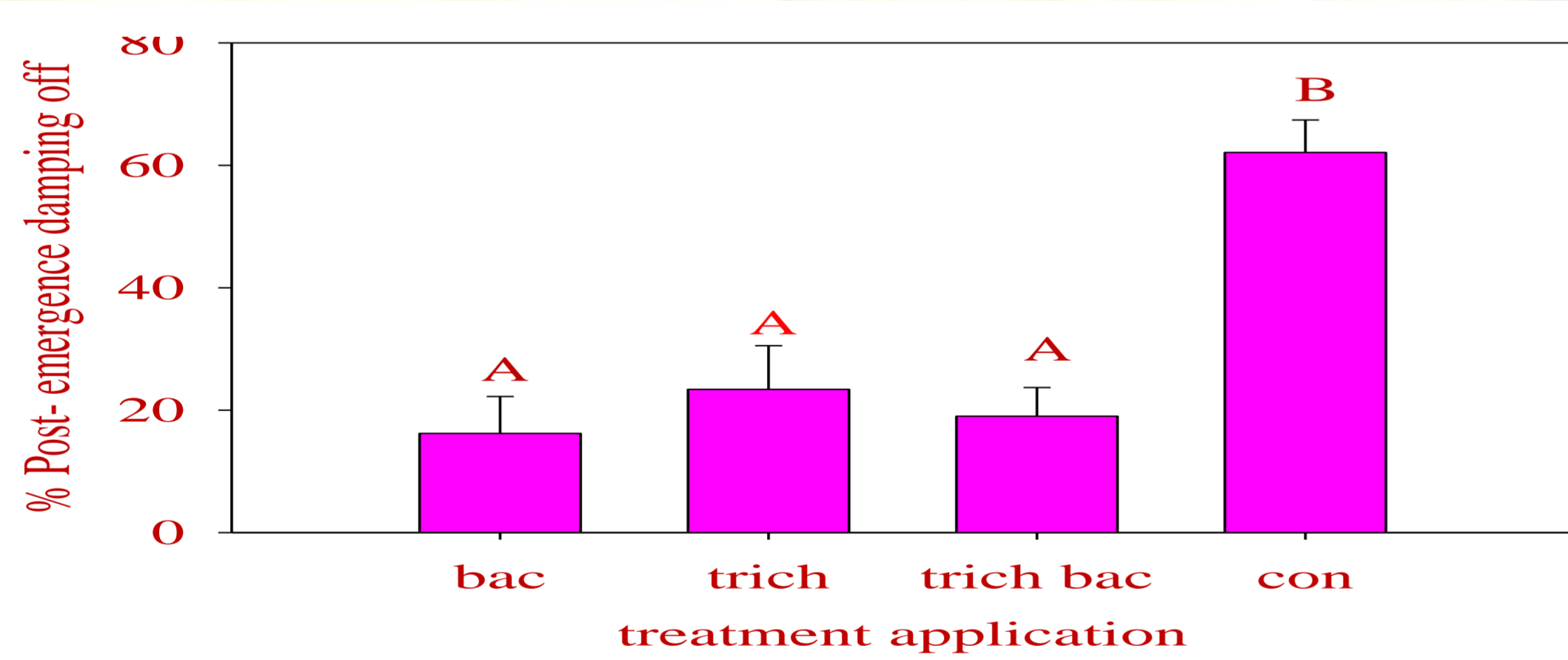


Fig 1: Means and standard error of the arcsine square root transformation of post-emergence damping off African nightshade

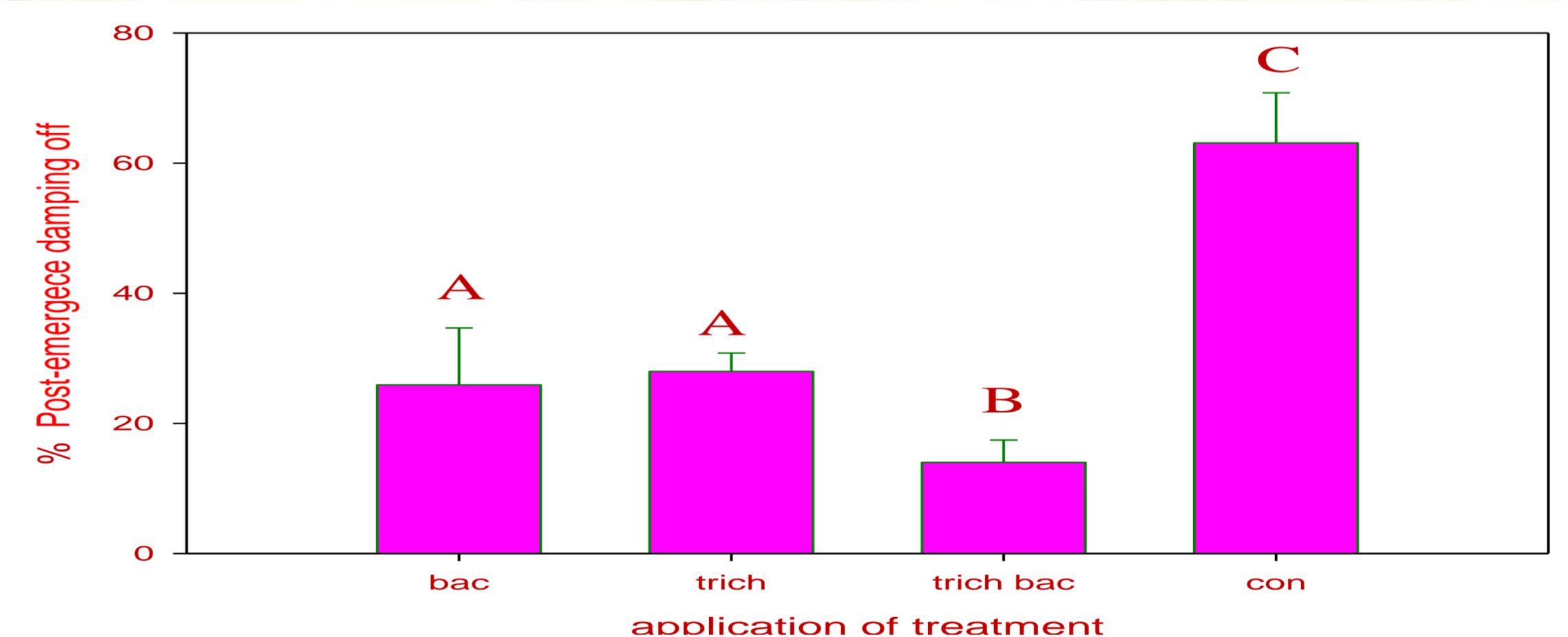


Fig 1: Means and standard error of the arcsine square root transformation of post-emergence damping off Ethiopian kale

CONCLUSION

- *Trichoderma* spp showed a higher control of control of pre-emergence damping of in African nightshade
- *Bacillus* spp can provide a potential control to post emergence damping off in African nightshade.
- *Bacillus subtilis* *Trichoderma asperillum* or combination can provide control a control to pre-emergence damping off in Ethiopian kale.
- In post emergence damping off combination of the *Bacillus subtilis* *Trichoderma asperillum* provide a potential control strategy in Ethiopian kale
- Application of *Bacillus subtilis* *Trichoderma asperillum* or combination as seed coat can effectively control damping off.

REFERENCES

- Agrios, G. N. (2004). *Plant pathology*. New york: academic press.
- Schipper, R. . (2002). *African indigenous vegetables*. Development. Aylesford, UK: Natural Resources International Limited.
- Narayanasamy, P. (2013). *Biological Management of Diseases of Crops*. (M. T. H. Heikki, Ed.). New York: springer.