

Influence of gibberellin on biometric and yield parameters of winged bean [*Psophocarpus tetragonolobus* (L.) DC.]

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SUMMARY

The gibberellin concentration increased the vegetative and yield parameters of winged bean [*Psophocarpus tetragonolobus* (L.) DC.]. The increase was directly proportional to the concentrations (25ppm, 50ppm, 75ppm, and 100ppm) used. The experiment was conducted on vegetative growth (on both 40th and 60th days after sowing). Gibberellin increased the shoot length, root length, petiole length, inter-nodal length, number of leaves, number of nodules and volume of nodules in all the concentrations. The pod length, pod circumference, pod weight (except at 25ppm), number of seeds/pod and weight of seeds/pod increased significantly in all the concentrations and it was directly proportional to the applied concentrations.

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Key words : Gibberellin, *Psophocarpus tetragonolobus*, Vegetative, Yield parameters

Gibberellic acid is a naturally occurring plant hormone that stimulates and regulates plant growth known as GA₃, this hormone promotes cell division and elongation, resulting in a taller plant. This plant growth hormone was discovered in 1920, when Kurosawa, a Japanese research worker was investigating the “bakanae” (foolish seedling) disease of rice caused by the fungus *Gibberella fujikuroi*. The fungus secreted some substances which stimulates the stem and leaf elongation. Yabuta (1941) at the University of Tokyo assigned the name “gibberellin” to the active factor. With the discovery of gibberellin, in 1920, a considerable body of information has emerged regarding the roles this hormone play in plant growth and development.

Gibberellins have been primarily used for manipulating production practices and ensuring the quality of high value crops such as grapes, citrus, cherries and apples increasing the market demands. This hormone was selected for the present investigation in order to improve the quality and quantity of winged bean [*Psophocarpus tetragonolobus* (L.) DC]. Winged bean has recently attracted world attention as a potential crop of high

nutritional value.

MATERIALS AND METHODS

Seeds of *Psophocarpus tetragonolobus* (L) DC. purchased from the seed centre, Tamil Nadu Agriculture University, Coimbatore was used for the experiments. Two sets of experiments were conducted. The investigations were carried out in the experimental plots of Avinashilingam Deemed University.

Experiment I :

For studying the morphometric characters of winged beans during midvegetative growth, the seeds were sown in pots. Gibberellin at different concentrations (25ppm, 50ppm, 75ppm, 100ppm) was sprayed twice at an interval of 10 days. On the 40th and 60th day, the plants were uprooted carefully from the plots and the following characters were studied.

- Shoot length
- Root length
- Petiole length
- Internodal length
- Number of leaves
- Number of nodules
- Volume of nodules

Experiment-II:

To study the seed and pod characters of winged beans, the seeds were sown in statistically designed randomized compact blocks in the research field of

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