RESEARCH PAPER:

Effect of indole – 3- acetic acid on cluster bean [*Cyamopsis tetragonoloba* (L.) Taub.]

■A. VIJAYALAKSHMI AND ANJU SINGH

SUMMARY

Experiment was carried out to study the effect of IAA on seedling growth, vegetative and yield parameters of cluster bean [*Cyamopsis tetragonoloba* (L.) Taub.]. On the 7th day, the characters like root length, shoot length and number of lateral roots increased rapidly in all the concentrations used. The root length increased very significantly at 50 ppm. A significant increase was seen in shoot length at 10 ppm and 20 ppm and very significant increase at 30 ppm, 40 ppm and 50 ppm. The number of lateral roots increased significantly at 30 ppm, 40 ppm and 50 ppm. On the 40th day, IAA treatment stimulated the length of epicotyl, length of hypocotyl, root length, number of leaves, internodal length, petiole length and number of lateral roots. Pod circumference increased significantly at 20 ppm and very significantly at 30 ppm, 40 ppm and 50 ppm. A significant increase of pod length was noted at 40 ppm and a very significant increase at 50 ppm. The pod weight increased very significantly at 40 ppm and 50 ppm. Number of seed/pod increased significantly at 20 ppm and very significantly at 30 ppm, 40 ppm and 50 ppm. The increase in weight of seeds/pod was directly proportional to the concentration used.

Author for
Correspondence -

A.VIJAYALAKSHMI
Department of Botany,
Avinashilingam Deemed
University for Women
COIMBATORE
(T. N.) INDIA
Email: avijayalakshmi
85@gmail.com

See end of the paper
for **Coopted authors**

Cluster bean [*Cyamopsis tetragonolobus* (L.) Taub.] is one of the important pulse crops consumed by human being and is now being considered as an important legume in India. It is an annual, erect, self -pollinated pulse crop. It is also cultivated for hay, silage and green manure. Raw mature seeds contain 23 per cent protein, 1.7 per cent fat, 6 per cent carbohydrate and traces of vitamins and minerals.

The productivity of this crop in India is surprisingly poor, compared to other countries. Hence, there is an urgent need to increase the levels of cluster bean to ensure adequate supply of proteins in basic diet and also better return to the farmers. Therefore, in the present study, an attempt had been made to understand the effect of indole-3-acetic acid in cluster bean.

Protein nutrition is one of the most crucial problems in India. Majority of Indians are vegetarian and pulses form an important constituent in the diet. Due to their nutritional value comparative to meat, pulses make an important component of vegetarian diet. Pulses also carry bacterial colonies in root nodules, enacting to utilize and fix atmospheric nitrogen. Since all plant parts are rich in protein, they also form excellent organic manure.

Growth and development of the plant body are controlled by two sets of internal factors namely, nutritional and hormonal. The growth substance includes both synthetic chemicals which do not occur in plants and those that are synthesized by the plant itself. Therefore, in the present study, an attempt was made to understand the effect of IAA.

EXPERIMENTAL METHODOLOGY

Seeds of cluster bean *[Cyamopsis tetragonolobus* (L.) Taub.], purchased from the seed centre, Agriculture University, Coimbatore were used for the investigations. Seeds of cluster bean were sown in experimental plots of Avinashilingam Deemed University. Three sets of experiments were conducted.

Experiment I:
For evaluating the rate of seedling growth, the seeds were germinated in germination