

Research  
Paper

## Influence of growth promoting and retarding compounds on dry matter production, growth parameters and yield in greengram during *Rabi*

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### ABSTRACT

An experiment was conducted to study the influence of growth promoting and retarding compounds on dry matter production, biochemical parameters and yield in greengram during *Rabi* with nine treatments. Among the treatments the growth promoting substances NAA (20 ppm) and brassinosteroid (20ppm) recorded significantly higher values for total dry matter production (TDM) over growth retardant treatments at all stages. Significant effect on growth parameters viz., CGR, RGR, LAI, LAR, and SLW was observed with the application of growth regulators. Highest seed yield was recorded with NAA (20 ppm) followed by mepiquat chloride 5% AS, brassinosteroid (20 ppm) and chlormequat chloride (137.5 g a.i ha<sup>-1</sup>).

Rajesh, K., Narender Reddy, S., Pratap Kumar Reddy, A. and Gopal Singh, B. (2010). Influence of growth promoting and retarding compounds on dry matter production, growth parameters and yield in greengram during *Rabi*, *Adv. Res. J. Crop Improv.*, 1 (2) : 149-152.

**Key words :** Greengram, Plant growth regulators, Dry matter production, Growth parameters, Yield

## INTRODUCTION

Pulses are cheap source of vegetable protein (20-25%). Among the pulses greengram is important because of its high nutritive value, short duration and its ability to suit in any cropping system. The plant growth regulators (PGRs) play an important role in manipulating the source sink relationship in pulses there by increasing the production. In this direction an attempt was made to study the influence of both growth promoting (NAA and Brassinosteroid) and growth retarding substances (chlormequat chloride and mepiquat chloride) on *Rabi* greengram.

## MATERIALS AND METHODS

A field experiment was carried out during *Rabi* 2009-2010 at Students Farm, College of Agriculture, Rajendranagar, Hyderabad with a Greengram cv WGG-37. The experiment consisted of 9 treatments viz., chlormequat chloride 50% SL (137.5 g a.i ha<sup>-1</sup>, 162.5 g a.i

ha<sup>-1</sup>, 187.5 g a.i ha<sup>-1</sup> and 375.0 g a.i ha<sup>-1</sup>), Mepiquat chloride 5% AS, NAA (20 ppm), Brassinosteroid (20 ppm), Water and Control. The experiment was laid out in Randomized Block Design with three replications. The spraying of growth regulators was done at flower initiation stage (38 DAS). The second row from either side in each plot was considered as sampling row and 5 plants were sampled at fortnightly intervals. After the plants were separated into leaves and stems, leaf area was electronically measured by using leaf area meter model LI-3100 of LICOR instruments. Later component parts were dried at 70°C till constant weight was achieved and dry matter values were used to calculate growth parameters. At the time of harvest, plants from one m<sup>2</sup> area were harvested and were used to record the data on yield and yield components.

## RESULTS AND DISCUSSION

Amount of total dry matter produced is an indication of overall efficiency of utilization of resources and better light interception by the leaf. The data recorded for total