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Influence of plant growth regulators on growth and green pop yield of cowpea [*Vigna unguiculata* (L.) Walp] cv. ANAND VEG. COWPEA-1

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Abstract : An experiment was conducted at Horticultural Research Farm, Department of Horticulture, B. A. College of Agriculture, Anand Agricultural University, Anand, during the *Kharif* seasons of the year 2008-09 and 2009-10. The seeds of cowpea cv. 'ANAND VEG COWPEA-1' were treated with plant growth regulators before sowing and foliar application of growth regulators was done at flower initiation stage. The maximum plant height was recorded with seed treatment of GA₃ 25 mg/l, while number of trifoliolate leaves per plant and number of branches per plant were found maximum with NAA 25 mg/l seed treatment. On the other hand, days to 50% flowering were minimum with GA₃ 25 mg/l seed treatment. The yield parameters *viz.*, early picking, maximum pod length, average weight of pods, total number of pods per plant, number of seeds per green pod, yield per plant and pod yield per hectare was observed maximum with GA₃ 25 mg/l seed treatment. Among different foliar application of PGR's, the treatment GA₃ 50 mg/l significantly increased the plant height, while NAA 25 mg/l produced significantly higher number of trifoliolate leaves per plant and number of branches per plant. The days required for 50 % flowering recorded was significantly lowest with MH 50 mg/l. Significantly early picking was registered with the MH 50 mg/l. while, the yield parameters like length of pod, average weight of 10 pods were observed significantly higher with GA₃ 50 mg/l. However, number of pods and number of clusters per plant were recorded significantly higher with NAA 25 mg/l. Whereas, the number of seeds per green pod, total yield per plant and green pod yield per hectare were recorded significantly higher with the foliar application of GA₃ 50 mg/l.

Key words : Growth regulators, Cell division and elongation, Photosynthates, Clusters, Pod

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Cowpea [*Vigna unguiculata* (L.) Walp] belongs to family leguminosae is grown throughout the India for its long green pods as vegetable. Seeds used as pulses and foliage as green manure as well as green fodder. Cowpea is the most versatile *Kharif* legume because of its drought tolering character, soil restoring properties and multipurpose use. Plant growth regulators are known to regulate and modify various physiological processes within the plant. Thereby they influence their effect on morphological characters and yield. The production and distribution of photosynthates is related to various physiological and biological processes which are influenced by the plant growth regulators.

RESEARCH METHODS

The experiment was conducted at Horticultural Research Farm, Department of Horticulture, B. A. College of Agriculture, Anand Agricultural University, Anand during the *Kharif* seasons of the year 2008-09 and 2009-10. The experiment was conducted in Randomized Block Design (Factorial) comprising twenty eight treatment combinations; four seed treatments [S₁- without treated (control)], S₂- water soaked for 6 hrs, S₃- GA₃ 25 mg/l and S₄- NAA 25 mg/l (each for 6hrs), seven foliar application treatments F₁- water spray (control), F₂- GA₃ 25 mg/l, F₃- GA₃ 50 mg/l, F₄- NAA 25 mg/l, F₅- NAA 50 mg/l, F₆- MH 25 mg/l and F₇- MH 50 mg/l at flower initiation in three replications. The seed treatments were given at the time of sowing, while the foliar spraying