Application of Spray and Seed Priming GA_3 with P And S Ameliorate Seed Protein Content by Augmenting Photosynthetic Attributes, Enzymes Activities Andleghemoglobin Content of Chickpea

Mohd Mazid

Department of Botany, Faculty of Life sciences, AMU, Aligarh-202002

ABSTRACT

The present study was carried out with an aim to maximize the performance of chickpea by the spray of a small quantity of phosphorus (P) and/or sulphur (S) based costly fertilizers with or without the soaking of GA(gibberellic acid) treatment(10^{-6}M GA for 8h) and/ or the GA spray treatment(10^{6}MGA at 60-70 DAS).P and S each at 2 kg/ha (mg P and mg S kg^{-1}) were sprayed intwo equal splits i.e. half at 60 and the remaining half at the 70 DAS alone or in combination with the GA treatment.Prior to sowing, total seeds of chickpea were grouped into two; one group of seeds was soaked in 0M GA (control) and the other group were soaked in 10^{-6}M GA aqueous solution, each for 8 hours.There were total sixteen treatments with ten combinations of P and/or S with GA are possible viz., F_{PS}, S_{GA}+F_{P},S_{GA}+F_{S},S_{GA}+F_{PS},F_{GAP},F_{GAS}, $F_{GAPS,}$ S_{GA}+F_{GAP}, S_{GA}+F_{GAS} and S_{GA}+F_{GAPS}.The crop performance was assessed in terms of physico-biochemical characteristics at 90 and 100 DAS and total seed protein content at harvest.The application of GA proved effective in alleviating the photosynthesis,enzymes activities, and protein content and seed yield per plant of chickpea.However, combined application of P and S with GA showed better responses,and further improvement in these parameters was observed.

Keywords: Gibberellins, photosynthesis, chickpea, leghemoglobin, sulphur, phosphorus