

Effects of growth regulator and nutrients on growth parameters and yield in chilli cv. BYADAGI KADDI

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ABSTRACT

The effect of plant growth regulators (PGR's) and nutrients on growth parameters and fruit yield in Chilli indicated that the growth parameters *i.e.* AGR, CGR, RGR and NAR increased significantly in all the growth regulator and nutrient treatments. Leaf area decreased in Cycocel treatment, with an increase in the concentration of Cycocel, there was an increase in SLW. Significantly higher fruit yield was recorded in growth regulator and nutrient treated plant as compared to control and the maximum fruit yield was recorded with Cycocel (1000 ppm).

Key words : *Capsicum annum* L, Growth regulator, Growth parameters, Chilli, CCC, NAA, ZnSO₄, MgSO₄, FeSO₄, Miraculogy, Cytozyme.

INTRODUCTION

Chilli (*Capsicum annum* L.) is an important spice crop and India is the largest producer of it in the world. Chilli fruits are good source of Vit. A and C. The reports on the effects of growth regulators and nutrients on yield and growth analysis aspects are scanty. One of the major factors affecting productivity of Chill is the use of proper growth regulator and nutrient at proper time to control flower and fruit drop (Fittings, 1909; Yamagar and Desai, 1987).

Relative growth rate (RGR), absolute growth rate (AGR) and net assimilation rate (NAR) are the important growth parameters influencing yield, which are dependent not only genotype but also on the environmental factors and management practices. Growth analysis technique has made substantial contribution to the current understanding of the physiological basis of yield variation in different crops and the information on the influence of growth regulators and nutrients on growth parameters in chill is meagre. Hence an investigation was planned to find out the effect of PGR's and nutrients on some growth parameters and their relationship with fruit yield in chilli var Byadagi kaddi.

MATERIALS AND METHODS

A field experiment was conducted during *kharif* 1998 on medium black soils at Agriculture College Farm, Dharwad with a Chilli variety Byadagi Kaddi. A field experiment consist of 15 treefments *viz*, CCC 500 and 1000 ppm, NAA 50 and 100 ppm, Miraculan 1000 and 2000 ppm, cytozyme 1000 and 2000 ppm. ZnSO₄ 0.25 and 0.50 per cent, FeSO₄ 0.25 and 0.50 per cent. MgSO₄ 0.25 and 0.50 per cent and control (water spray). The

experiment was laid out in Randomized Block Design with three replications. The spraying of growth regulators and nutrients was done at 45 and 65 days after transplanting. The leaf area was determined by using leaf disc method. The data obtained on dry weight of different plant parts and the leaf area were used to compute various growth parameters like AGR, CGR, RGR, NAR and SLW. Harvesting of chillies was done at red ripe stage. Red ripe chillies were dried till the constant weight was obtained. Based on the total yield per plot from all the pickings, yield per hectare was calculated. The data on leaf area, growth parameters and fruit yield were subjected to statistical analysis as suggested by Panse and Sukhatrme (1984).

RESULTS AND DISCUSSION

It was observed that all the growth parameters studied *i.e.* AGR, RGR, CR and NAR declined with an advancement in crop growth from 75 – 90 DAT to 90 DAT – harvest in all the treatments (Table 1 and 2). Further there was an increase in all these parameters with application of growth regulators, Generally Cycocel (100 ppm) registered the higher values of growth parameters as compared other treatment indicating the superiority of this chemical in bringing about the enhanced growth.

This increase in the growth parameters at higher concentration of growth regulator could be attributed to an increase in the rate of dry matter accumulation and production of higher total dry matter. All the treatment differed significantly with respect to all the growth parameters studied. The increase in CGR and NAR due to application of Cycocel (500ppm) at 36 DAP has been reported by Banerjee and Das (1984). Similarly