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Research Notes

Effect of root dipping of seedlings with plant growth regulators and chemicals on yield and yield components of rice (*Oryza sativa* L.) transplanted by broadcast method

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Presowing treatments to seeds or seedlings with growth regulators and other chemical substances have been found effective for improving plant growth and development (Gupta, 1956). However, the role of these growth regulators and other chemicals in improving agricultural productivity of many crops has largely remained unexplored. Thus the present study has been conducted in the Department of Crop Physiology, Tamil Nadu Agricultural University, Coimbatore during 1997-1999 to assess the effect of different growth regulators and chemicals on the yield and yield components of rice, transplanted by broadcast method.

The practice of broadcasting the seedling in the main field has the advantage of time and labour saving and thus minimise the cost of cultivation, though this practice pose problems like poor rooting, poor establishment and late maturity which finally reflects on the yield. To overcome these problems, a trial was conducted by root dipping of rice seedlings with plant growth regulators (PGRs) and chemicals. The PGRs IBA (25 ppm), NAA (25 ppm), Mepiquat chloride (10 ppm), CCC (10 ppm), Alar (25 ppm) and Chemicals Thiamine (10 ppm), Ascorbic acid (10 ppm), Resorcinol (25 ppm) and $ZnSO_4$ (2.5%) were given as root dipping for 60 minutes (Table 1).

Data on the yield and yield components indicated that there is a possibility of yield increase in rice by root dipping treatment with PGRs and chemicals. The yield and yield components showed significant improvement as a result of root dipping treatments. The number of productive tillers $hill^{-1}$, number of filled grains $panicle^{-1}$, 1000 grain weight and harvest index (HI) were higher in IBA (25 ppm) treatment followed by mepiquat chloride and thiamine treatments. For instance, the root dipping of 25 day old seedlings with IBA 25 ppm increased the grain yield by 17.86 per cent over untreated control.

Significant yield increase in wheat by presoaking of seedlings with IBA and vitamins (Thiamine) had been reported earlier by Chhipa and Lal (1988). Increased grain yield may be due to enhanced growth and translocation of photo assimilates to the reproductive organs, increased panicle number, total grain number, filled grain number and 1000 grain weight (Chatterjee *et al.* 1975).

From this study, it is evident that root dipping of seedlings with PGRs and chemicals has got positive effect on yield improvement in rice.

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Table 1. Effect of root dipping treatments on yield and yield parameters of rice

Treatments	No. of productive tillers/hill	No. of grains/panicle	No. of filled grains/panicle	1000 grain wt. (g)	Grain yield/ hill (g)	Harvest index (%
IBA-25 ppm	8.92	131.30	105.81	20.26	18.73	44.20
NAA-25 ppm	8.08	125.40	98.40	19.97	15.90	40.80
Mepiquat chloride-10 ppm	8.56	129.57	103.37	20.20	17.70	43.40
CCC-10 ppm	7.56	121.70	95.90	19.84	14.50	37.50
Alar-25 ppm	7.33	120.22	94.20	19.85	14.35	37.30
Thiamine-10 ppm	8.36	131.20	102.90	19.86	17.20	43.20
Ascorbic acid-10 ppm	8.80	126.20	98.80	20.05	16.00	40.80
Resorcinol-25 ppm	8.30	129.50	100.80	20.15	16.73	42.20
$ZnSO_4$-2.5%	8.13	128.60	102.20	20.12	16.62	42.00
Azospirillum slurry	8.28	125.72	92.70	19.88	16.34	42.00
Transplanted crop	8.10	124.00	98.50	20.20	15.96	40.10
Control (broadcasted crop without treatment)	6.98	120.20	89.60	19.70	13.51	36.80
CD (0.05)	0.068	1.136	1.004	0.179	0.131	0.344
SEd	0.135	2.260	1.950	0.357	0.261	0.685

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Research Notes

Influence of season on success of wedge grafting under propagatio structure (Mist chamber) in tamarind (*Tamarindus indica* L.)

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Season of grafting plays a paramount role among different factors involved in success of top wedge grafting. If the season is not conducive, the favourable effects of other factors are likely to be nullified, resulting in lower success. As the success of grafting is dependent upon weather conditions as reported by many workers in different crops, the present investigation was taken up at the University of Agricultural Sciences, Dharwad in 2000-01 to know the seasonal influence on graft success in tamarind.

The experiment was conducted on th rootstocks of similar age maintained in th polythene bags. Rootstocks were grafted in th first fortnight of every month. Polythene bag of 400 gauge thickness and size of 20 x 1 cm were used for raising rootstocks. Pottin mixture containing red earth, farmyard manur (FYM) and coir dust in 1:1:1 (v/v) proportio was used. Selected healthy, large sized seed were sown flat on the medium at a shallo depth. Five-month-old seedlings were used fo