



Short Note

Influence of Nutrients and Plant Growth Regulators on Growth and Yield of Baby Corn

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Baby corn (*Zea mays L.*) is the immature young ear of maize plant. It can be effectively cultivated both for domestic and foreign consumption as a nutritious vegetable rich in vitamin C, sugars, proteins, as an export oriented crop because of its sweet flavour, crispiness and its byproducts such as tassel, young husk, silk and green stalk provide good cattle feed. Looking at the speed at which baby corn use is picking up, there is tremendous scope for its cultivation in our country. Thus, it is essential to standardize the agro techniques for baby corn growing in order to popularize its cultivation among the farming community.

A field experiment was carried out in farmer's field at Chinnamathampalayam village, Periyannayakanpalayam block in Coimbatore district during *late rabi* season of 2006-07. The soil of the experimental field was sandy loam in texture belonging Typic Ustochrepts. The soil was low, medium and medium for available nitrogen (182.5 kg ha^{-1}), phosphorus (15.2 kg ha^{-1}) and potassium (198.2 kg ha^{-1}) respectively. Baby corn composite COBC 1 was used as test crop. The treatment consists of foliar application of nutrients (Urea 1% and DAP 2%), plant growth regulators [Mepiquot chloride (MC) @ 200 ppm, Pink Pigmented Facultative Methalotrophs (PPFMs) @ 5 Lit ha^{-1} , Brassinosteroid (BR) @ 0.3 ppm, Nitrobenzene (NB) @ 0.3 ppm and Ethrel @ 100ppm] and water spray as control. The experiment was laid out in Randomized Block Design (RBD) replicated thrice. The sprays were given on 25 and 45 DAS. Green cob yield from net plot was harvested alternate days, weighed and expressed in kg ha^{-1} .

The effect of nutrients and plant growth regulators on growth parameters and yield of baby corn was significant (Table 1). Application of PPFM @ 5 Lit ha^{-1} produced taller plants with more LAI and DMP followed by BR @ 0.3 ppm. Plant height, LAI and DMP were lower in the treatment received MC @ 200 ppm. The increase in growth parameters with PPFM spray might be due to symbiotic relationship between the methylobacteria and host plants. The methylotrophs might have beneficially influenced the symbiotic plants, nitrogen metabolism, vitamins, growth promoting hormones (auxin and cytokinin) and enhanced the growth of the plants as reported by Madhiyan *et al.*, (2005). Growth regulators significantly influenced the days to first tassel and silk emergence. The days to first tassel and silk were emerged four days earlier in BR spray over control, which is on par with nitrobenzene and ethrel. The early induction of tasseling and silking might be due to the germination and growth of pollen tubes induced by the application of BR (Sivakumar, 2000).

Application of nutrients and growth regulators had a significant influence on green cob yield. The green cob yield obtained from PPFM @ 5 Lit ha^{-1} was found to be superior followed by MC @ 200 ppm and BR @ 0.3 ppm. PPFM is a growth promoter and the higher yield might be due to significant increase in length, diameter and weight of cob and corn. Exogenous methanol of plant stimulated the growth of *Methylobacterium sp.* which ought to have provided cytokinins and auxins which in turn influenced plant development and ultimately increased the yield. Cytokinins help in promoting cell division, delaying of senescence, counteracting

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Table 1. Growth parameters and yield of baby corn as influenced by nutrients and growth regulators

Treatment	Growth parameters					Yield	
	Plant height (cm)	DMP (kg ha ⁻¹)	Leaf area index	Days to first tassel emergence	Days to first silk emergence	Green cob yield (kg ha ⁻¹)	Green fodder yield (t ha ⁻¹)
T ₁ : Urea (1%)	179.5	7248	3.43	55.1	58.2	6636	30.8
T ₂ : DAP (2%)	170.3	6834	3.23	55.0	58.0	6754	28.5
T ₃ : Mepiquot chloride (MC) (200 ppm)	157.6	6024	3.02	53.5	56.5	7622	26.2
T ₄ : PPFMs (5 Lit ha ⁻¹)	197.7	7648	3.64	55.3	58.5	7785	34.6
T ₅ : Brassinosteroid (BR) (0.3 ppm)	194.2	7367	3.45	51.4	54.0	7374	32.8
T ₆ : Nitrobenzene (NB) (0.3 ppm)	173.5	6856	3.25	51.5	54.2	6723	30.4
T ₇ : Ethrel (100 ppm)	173.0	6840	3.24	51.7	54.4	6698	30.2
T ₈ : Control (water spray)	169.4	6423	3.20	55.6	58.4	6227	28.1
SEd	5.1	192	0.08	1.0	1.4	180	0.9
CD (P=0.05%)	10.1	387	0.17	1.9	2.9	359	1.8

PPFMs: Pink Pigmented Facultative Methalotrophs

apical bud dominance, translocation of assimilates and thereby improving the yield potential of plants (Madhiyan *et al.*, 2005). The increase in yield due to MC spray might be due to increased yield attributes which in turn resulted from more effective translocation of photosynthates from source to sink due to the shortening of distance between source and sink (Muthukumar *et al.*, 2005).

The highest green fodder yield was recorded with application of PPFM (5 Lit ha⁻¹) followed by BR (0.3 ppm). Increase in fodder yield due to PPFM spray might be due to increased synthesis of phytohormones (cytokinin and auxin) associated with increase in plant height, LAI and DMP which might be due to increased cell division, cell enlargement and elongation. Application of MC (200 ppm) recorded lowest fodder yield. Since MC is a growth retardant, contributed to reduced plant height, DMP and finally reduction in fodder yield.

The present investigation revealed that the application of Pink Pigmented Facultative Methalotrophs @ 5 Lit ha⁻¹ would produce significantly higher growth parameters and yield of baby corn when compared to rest of the treatments.

Reference

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