

Influence of zink and iron on yield and quality of cauliflower (*Brassica oleracea* var. botrytis Linn.) cv. SNOWBALL-16

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ABSTRACT

The present investigation entitled "Influence of zinc and iron on yield and quality of cauliflower (*Brassica oleracea* var. botrytis Linn.) cv. SNOWBALL-16" was conducted during *rabi* season of the year, 2002-03. The field trial was laid out in Factorial Randomized Block Design with four replications and nine treatment combinations, considering three concentrations of Zn (0.0, 0.5 and 1.0%) and three concentrations of Fe (0.0, 0.5 and 1.0%) applied as foliar sprays at 30 and 60 days after transplanting of seedlings. The results indicate that significantly highest diameter of curd (cm), volume of curd (cm)³ and average weight of curd per plot (kg) were recorded with combine foliar sprays of zinc (ZnSO₄) and iron (FeSO₄) at 0.5% concentration each. The non-significant result was obtained on total soluble solids (%) with individual foliar sprays of zinc and iron at 0.0, 0.5 and 1.0% concentration, respectively and with different combine foliar sprays of zinc and iron at 0.0, 0.5 and 1.0 % concentration each.

Key words : Zinc, Iron and Cauliflower.

Cauliflower (*Brassica oleracea* var. botrytis Linn.) is one of the most important vegetable cole crops grown in India. It is grown for its white tender curd formed by shortened flower parts. It has high nutrient requirement, particularly macro and micronutrients. Cauliflower curd yield has been set aside by deficiency of micronutrients, which leads to certain physiological disorders (Mehrotra and Misra, 1974). But the research done on use of zinc with combination of iron is scanty. So that the present investigation was carried out to study the influence of Zinc (ZnSO₄) and Iron (FeSO₄) on yield and quality of cauliflower cv. SNOWBALL-16.

MATERIALS AND METHODS

The field trial was conducted during *rabi* season of the year, 2002-03 at Agronomy Research Farm, College of Agriculture, Junagadh Agricultural University, Junagadh. The experiment was laid out in Factorial Randomized Block Design with four replications. Zinc and iron were applied in the form of zinc sulphate (ZnSO₄.7H₂O) and ferrous sulphate (FeSO₄.7H₂O), respectively. There were nine treatment combinations, considering three concentrations of zinc (0.0, 0.5 and 1.0%) and three concentrations of iron (0.0, 0.5 and 1.0%) applied as foliar sprays at 30 and 60 days after transplanting of seedlings. The seedlings of cauliflower cv. Snowball-16 were transplanted after five weeks of seed sowing at 45×30 cm spacing. All the experimental plots received recommended dose of nitrogen (150 kg/ha), phosphorus (37.5 kg/ha) and potassium (37.5 kg/ha)

along with F.Y.M. (15 tones/ha). The data were recorded on diameter of curd (cm), volume of curd (cm)³, average weight of curd per plot (kg) and total soluble solids (%) from randomly selected plants.

RESULTS AND DISCUSSION

Effect of zinc :

It is evident from Table 1 that the maximum diameter of curd, volume of curd and average weight of curd per plot were recorded with foliar spray of zinc 0.5% concentration. The marked improvement in diameter and volume of curd by the application of zinc might be due to the improved physiological activities like photosynthesis during which food is manufactured by the plant,

Table 1: Effect of different levels of zinc and iron on yield and quality of cauliflower cv. 'SNOWBALL-16'

Treatment levels	Diameter (cm)	Volume (cm) ³	Average weight of curd per plot (kg)	Total soluble solids (%)
Zn levels				
Zn ₀ (Control)	13.56	301.00	14.08	6.68
Zn ₁ (ZnSO ₄ 0.5 %)	15.56	373.33	20.20	7.00
Zn ₂ (ZnSO ₄ 1.0 %)	15.12	328.68	16.57	6.87
Fe levels				
Fe ₀ (Control)	14.11	301.17	14.80	6.53
Fe ₁ (FeSO ₄ 0.5 %)	15.64	375.07	20.31	7.20
Fe ₂ (FeSO ₄ 1.0 %)	14.48	326.77	15.74	6.80
S.E. ±	0.30	8.60	0.56	0.30
C.D. (P=0.05)	0.90	25.00	1.63	N.S.