



Effect of different levels of sulphur and zinc on growth and yield of cauliflower (*Brassica oleracea* var. *botrytis* L.)

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ABSTRACT

Field experiment was conducted on sandy loam soil to study of response of cauliflower cultivar to different levels of sulphur and zinc on growth and yield attributes. The growth and yield increased with increasing levels of sulphur and zinc application significantly, whereas the highest level of sulphur brought about highly significant reduction in days taken to curd initiation and maturity in comparison to control and also remained unchanged due to application of zinc. The highest net return and benefit:cost ratio recorded under treatment 60 kg S/ha and 6 kg Zn/ha, these were probably occurred due to highest curd yield.

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Key words : Sulphur, Zinc, Growth, Yield, Cauliflower

Cauliflower is one of the important, popular and widely grown cole crops vegetable in India and abroad and it is very well known for its nutritive value. Sulphur is an essential plant nutrient and it stands next to primary nutrients in importance. Sulphur plays a vital role in biosynthesis of certain amino acids (cysteine, cystine and methionine) that are essential component of protein and also help in the synthesis of coenzyme-A and formation of chlorophyll and nitrogenase enzyme.

Further, sulphur also provides winter hardiness and drought tolerance, control of insect pests and disease etc. Two natural growth regulators, thiamin and biotin contain sulphur. Sulphur occurs in glutathione that is important in oxidation reduction reaction (Kanwar, 1976). Besides sulphur, zinc also play an important role in plant nutrition. The main function of zinc in plant is of a metal activator of enzyme like dehydrogenase, proteinases and peptinases. Zinc is essential for the synthesis of tryptophan, a precursor of IAA, which is essential for normal cell division and other metabolic process and helps in the formation of chlorophyll. Zinc has catalytic function and is required for the transformation of carbohydrate. The deficiency also causes interveinal chlorosis, reduced root growth, blossoming and flowering. Similarly, shortened internodes and chlorotic areas of older leaves due to its deficiency were reported by Shanmugavlu (1989). Therefore, the present investigation was

undertaken with a view to find out the optimum dose of sulphur and zinc for obtaining maximum growth and yield and cost benefit ratio of cauliflower.

MATERIALS AND METHODS

Field experiments on cauliflower (*Brassica oleracea* var. *botrytis* L.) were conducted at the Horticulture Nursery, College of Agriculture, Gwalior during Rabi season 2008-09. The field is situated in the north of Madhya Pradesh at an attitude of 226.6 metres from sea level with latitude and longitude 26°13' N and 78°14' E, respectively. The soil of experimental area was sandy loam having good drainage. The experiment was conducted in a Randomized Completely Block Design keeping three replications. The treatments consisted of 16 combinations of 4 levels each of sulphur viz., S₀ (0 kg S/ha), S₁ (20 kg S/ha), S₂ (40 kg S/ha) and S₃ (60 kg S/ha) and zinc viz., Z₀ (0 kg Zn/ha), Z₁ (2 kg Zn/ha), Z₂ (4 kg Zn/ha) and Z₃ (6 kg Zn/ha).

RESULTS AND DISCUSSION

The result indicate that application of sulphur significantly influenced the growth and yield of cauliflower. Significant increase in plant height, plant spread, number of leaves per plant, dry matter content, fresh weight of curd, yield of curd and dry weight of curd/100 g of fresh