Effect of foliar application of micronutrients on growth and flowering of rose under polyhouse conditions

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Abstract: Present investigation was carried out to study the effect of foliar application of micronutrients on growth and flowering of rose under polyhouse conditions was conducted at Satpuda Botanic Garden, College of Agriculture, Nagpur during the year July 2008 to Dec. 2008. The treatment comprised of 0.1 to 0.3 per cent alone ZnSO₄, MnSO₄, FeSO₄ and combination treatments. The results of present investigation indicated that, the vegetative growth in term of number of primary branches, number of secondary branches, number of leaves per shoot, number of leaves per plant and number of blind shoots were found superior under 0.3 per cent ZnSO₄ + 0.3 per cent MnSO₄ + 0.3 per cent FeSO₄ followed by 0.2 per cent ZnSO₄ + 0.2 per cent MnSO₄ + 0.2 per cent FeSO₄. The flowering attribute like days required for first flower bud initiation was found minimum in treatment 0.3 per cent ZnSO₄ + 0.3 per cent MnSO₄ + 0.3 per cent FeSO₄. Foliar spray of 0.3 per cent ZnSO₄ + 0.3 per cent MnSO₄ + 0.3 per cent FeSO₄ increased the flower yield and quality of flower.

Key words: Rose, Polyhouse, Foliar application, Micronutrients, Growth, Flowering

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days interval regularly through foliar spray.

**Bending operation:**

The bending is necessary for keeping enough leaves on the plants and leaves are important for the production of carbohydrates. The bending should be such that the most of the stems are bending below horizontal level. This is important for breaking the apical dominance of the plant. For bending only weak stems or blind shoots are selected. Bending is done on 1st or 2nd five pair of leaves. The place where selected to bend is as close to the original bush as possible (maximum 5 cms), without breaking branches. To avoid breaking, bending was done afternoon by creating two 45° bends rather than one 90° bend. This cultural operation was done with a view to help plants to initiate ground shoots will form main framework of plant structure, which is required for good production.

**Disbudding:**

Disbudding was done to save the food material and divert it towards the main flower bud for its development. The side buds below the terminal bud were removed carefully. Observations were recorded for each and every plant in the treatment beds in all the replications of growth, flowering, flower quality and flower yield.

**RESEARCH FINDINGS AND DISCUSSION**

The data in Table 1 revealed that, significantly maximum number of primary branches (2.72), number of secondary branches (7.64), leaves shoot⁻¹ (16.83), leaves plant⁻¹ (66.51) were recorded under treatment T₁₂, which was at par with treatments T₁₁. Whereas, Minimum number of primary branches primary branches (1.73), number of secondary branches (3.77), leaves shoot⁻¹ (10.29) were recorded under treatment T₁₃. But in respect minimum leaves plant⁻¹ (44.71) was recorded under treatment T₄ and T₁₃ (44.91) which were at par with each other.

Micronutrients plays a vital role in production of vegetative growth and ultimately encourage the number of primary branches, secondary branches, leaves and shoots of plants by involving in oxidation-reduction process and photosynthesis process. These findings are in close conformity with the findings of Muthumanickam et al. (1999) in gerbera, Sabale et al. (1992) in rose.

The data in respect of blind shoots, significantly minimum number of blind shoots (1.54) was recorded under treatment T₁₂ whereas, maximum number of blind shoots was observed in treatment T₁₃ (4.12). Similar results were obtained by Bhattacharjee (1993) and Sabale et al. (1992) in rose.

In respect of significantly maximum diameter of flowering stem (cm) was recorded under treatment T₄. H.D. JAGTAP, V.J. GOLIWAR AND S.A. THAKRE
(0.56 cm), was at par with treatments T₃, T₆, T₇, T₁₁, T₁₂. Whereas, minimum diameter of flowering stem was recorded in the treatment T₁₃ (0.51 cm), T₇ (0.51 cm), T₁₃ (0.51 cm). Similar results were also obtained by Kewate and Sabale (1997) in rose.

The data in respect of yield contributing parameters, significantly maximum length of flowering stem (70.92 cm), length of flower bud (3.76 cm), diameter of flower bud (2.75 cm), vase life of flower (10.25), number of flowers plant⁻¹ (28.22), number of flowers hectare⁻¹ (20,45,024.00) were observed under the treatment T₁₂ which was at par with treatments T₁₁. Whereas, minimum length of flowering stem (49.80 cm), length of flower bud (3.17 cm), diameter of flower bud (2.52 cm), vase life of flower (6.33), number of flowers plant⁻¹ (18.05), number of flowers hectare⁻¹ (12,04,408.00) were observed under the treatment T₁₃.

Micronutrient plays an important role involving in photosynthesis; break down of IAA, auxin and protein synthesis. Increased physiological activity and productive process through foliar application of micronutrient were also reported by Bhattacharjee (1993) in rose, Kewate and Sabale (1997), Sujatha et al. (2002), Gurav et al. (2002) in gerbera.

**Conclusion:**
It can be inferred from the results that, the treatment 0.3 per cent ZnSO₄ + 0.3 per cent MnSO₄ + 0.3 per cent FeSO₄ was found better in respect of maximum vegetative growth, higher yield of flower hectare⁻¹.

**REFERENCES**


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