

Influence of organics, plant growth regulators and micronutrients on biochemical and quality parameters in carrot (*Daucus carota*)

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SUMMARY

Experiments were conducted at Main Agricultural Research Station, University of Agricultural Sciences, Dharwad during the yeas of 2003-04 and 2004-05 to study the influence of organics, micronutrients and plant growth regulators on biochemical and quality parameters in two carrot cultivars viz., Dharwad Local and Pusa Kesar. Application of RDF + GA₃ (40 ppm) followed by RDF + cytozyme (2000 ppm) found significantly higher biochemical (total chlorophyll and nitrate reductase activity) and quality parameters (total sugar, carotene content, TSS and per cent solid) over control and other treatments. Non-significant differences were noticed between variety and treatments. Application of RDF + GA₃ (40 ppm) was fund more effective in increasing biochemical and quality parameter in carrot during both the years.

Key words : Carrot, PGR's, Micronutrients, Biochemical, Quality

Carrot (*Dacus carota*) is an important vegetable crop grown all over the world in spring, summer and autumn in temperate regions and during winter in tropical and sub-tropical conditions. Carrot root is an excellent source of carotene a precursor of vitamin-A and fibre in the diet. Vitamin A is an important nutrient, especially deficiency of which causes xerophthalmia, an eye ailment. The organic sources not only helps in maintaining or improving the physico-chemical characteristics and fertility of soil, but also increase the crop yield. Vermicompost is rich in both macro and micro-nutrients besides having plant growth substances, humus forming of microbes and nitrogen fixers (Bano *et al.*, 1997). According to Nিকে (1978), the plant growth regulators are new chemicals and are expected to play an important role in overcoming the hurdles in manifestation of biological yield even in root crops. In recent years, the use of micronutrients is gaining more importance in improving the yield potential and also the quality of the produce in several crops. With this background, the investigation was aimed to find out the effect of organics, plant growth regulators and micronutrients on biochemical and quality parameters in carrot.

MATERIALS AND METHODS

The investigations were carriedout at Main Agricultural Research Station, University of Agricultural Sciences, Dharwad during *rabi* seasons of 2003-04 and 2004-05. The two cultivars of carrot Dharwad Local and

Pusa Kesar were selected for the study. The experimental site consisted of medium black clay loam soil and was laid out in a factorial randomized block design with 16 treatments replicated thrice. The organics were applied to the soil along with recommended dose of fertilizer and foliar spray of micronutrients and plant growth regulators were given at 30th and 50th days after sowing. A common dose of RDF (75:62.5:50 kg NPK/ha) was applied to all treatments receiving organics, plant growth regulators and micronutrients. The observations were recorded on five plants in each plot for various biochemical and quality parameters. The mean value of data were subjected to statistical analysis as per method of Panse and Sukhatme (1967). The details of the treatments are furnished below.

- T₁ - Control (RDF)
- T₂ - RDF + Vermicompost (12.5 t/ha)
- T₃ - RDF + FYM (5 t/ha)
- T₄ - RDF + *Azospirillum* (500 g/ha)
- T₅ - RDF + Miraculan (1000 ppm)
- T₆ - RDF + Miraculan (2000 ppm)
- T₇ - RDF + Cytozyme (1000 ppm)
- T₈ - RDF + Cytozyme (2000 ppm)
- T₉ - RDF + GA₃ (20 ppm)
- T₁₀ - RDF + GA₃ (40 ppm)
- T₁₁ - RDF + MgSO₄ (0.5%)
- T₁₂ - RDF + MgSO₄ (1.0%)
- T₁₃ - RDF + FeSO₄ (0.3%)
- T₁₄ - RDF + FeSO₄ (0.6%)

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