

Effect of plant growth regulators and micronutrients on certain quality attributes of kagzi lime (*Citrus aurantifolia* Swingle)

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ABSTRACT

An experiment was carried out during the years 2002 and 2003 on kagzi lime on Pramalini at Department of Horticulture, Marathwada Agricultural University, Parbhani. Fifteen-year-old kagzi lime orchard was treated with two growth regulator, NAA (100 ppm and 200 ppm) and GA (50 ppm) singly and in combination with micronutrient (0.5 % and 1% spray) at flowering and pea size fruit stage. Results revealed that NAA 200 ppm + micronutrients mixture 1 % spray is the best treatment for increasing total soluble solids, acidity, ascorbic acid, reducing sugar of fruit and chlorophyll-b content of leaves.

Key words : Plant growth regulators, micronutrients, Kagzi lime, quality attributes

INTRODUCTION

Acid lime is an important fruit crop under citrus group and the edible portion is juicy fruits. In recent year a great deal of research work has been reported on the uses of plant growth regulators in citrus crops. However most of the studies have been carried out in the field of growth and yield of citrus crops and very little information is available on use of plant growth regulator and micronutrients in quality improvement of fruits especially in acid lime. A trial therefore was conducted at Department of Horticulture, College of Agriculture, Marathwada Agricultural University, Parbhani in year 2002 and was repeated in 2003 to evaluate the response of GA, NAA and micronutrient mixture in quality improvement of acid lime.

MATERIALS AND METHODS

The trial was conducted at the Department of Horticulture, College of Agriculture, Marathwada Agricultural University, Parbhani in year 2002 and was repeated in 2003 and pooled data was analysed. The soil of experimental site was fairly uniform deep black cotton soil with good drainage. The trial was laid out in Randomized Block Design with twelve treatments and three replications. The treatments consisted of GA (50 ppm), NAA (100 and 200 ppm) and micronutrient mixture spray (0.5 and 1%) singly and in combinations. The micronutrient mixture contains Fe-2.5 %, Mn-1%, Zn-3 %, Cu-1 %, Mo-0.1 % and B-0.5 %. The aqueous solution of different treatments was sprayed on sunny days during first week of January at flower emergence stage and first week of March at pea size fruit stage in both years. The total soluble solid of juice was determined by hand refractometer, acidity was determined by treating juice

against sodium hydroxide solution, ascorbic acid by using 2,6 dichloro phenol indophenols visual titration method (AOAC.1965), total sugar by Lane and Eynon (1923), non reducing sugar by subtracting reducing from total sugar and chlorophyll a and b by Hiscox and Israelstan (1979).

RESULTS AND DISCUSSION

Total soluble solid of juice:

The data presented in Table 1 revealed that different treatments significantly influenced the total soluble solid and acidity of fruit juice content. The TSS was increased due to treatment of NAA 200 ppm (10.23 %) spray where as minimum was recorded in control (8.15%). As regard the acidity, the NAA 200 ppm + micronutrient 1 % recorded maximum acidity of juice and minimum acidity was found in control (6.2%) Haribabu (1980) noted considerable improvement in the chemical composition of kagzi lime fruits as the results of zinc and 2,4-D. Similarly Singh and Rethy (1985) observed that application of different micronutrients and NAA improved the TSS and titratable acidity of fruit juice. Josan *et al.* (1998) found that NAA 10,20,40 ppm increased TSS and acid content of fruit juice in lemon cv. BARAMASI. The failure of micronutrients to significantly affect fruit juice composition in the present investigation may be due to its low concentration tried or inadequate number of sprays of micronutrients.

Ascorbic acid content of juice:

The results presented in Table 1 revealed that there was significant increase in ascorbic acid content of fruit juice due to application of different chemical treatments. The maximum ascorbic acid content was recorded in treatment NAA 200 ppm + micronutrient 1 per cent spray