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Research Paper

Influence of micronutrients on plant growth, yield and quality of papaya fruit (*Carica papaya* L.) cv. WASHINGTON

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ABSTRACT

The present investigation was carried out at Main Experiment Station Horticulture, N. D. University of Agriculture and Technology, Kumarganj, Faizabad during the year 2007-08 to evaluate the influence of foliar feeding of micronutrients on plant growth, yield and quality of papaya fruits. The significant increase in plant growth, yield and fruit quality characters *viz.*, plant height, plant girth, fruiting height, fruiting depth, number of fruit per plant, fruit yield (kg/plant and q/ha), fruit size (fruit length and width), T.S.S., total sugars and ascorbic acid content were recorded with the foliar application of copper sulphate 0.25 per cent manganese sulphate 0.25 per cent alongwith borax 0.1 per cent followed by copper sulphate 0.25 per cent along with borax 0.1 per cent. Significant reduction in days taken to first flowering and acidity were recorded with same treatment

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Key words : Papaya, Micronutrients, Borax, Copper sulphate, Manganese sulphate

Papaya (*Carica papaya* L.) is an important fruit of tropical and sub-tropical regions of the world belonging to family caricaceae and also known as papita, pawpawa and true melon. It is native to tropical America (Mexico). In India, it was introduced in 16th century via Malacca (Kumar and Abraham, 1942) and now become wide spread throughout the country. It has gained tremendous impact on economic and nutritional value. The ripe fruit of papaya is eaten as such through out the tropics. Ripe fruits also find its extensive uses for several preparations like jam, soft drinks, ice-cream flavoring and crystallized fruit. It is a nutritive fruit containing carbohydrates, protein and minerals mainly iron, calcium and phosphorus. It is rich source of Vitamin 'A' having 2020 I.U./100g of fruit. The immature papaya fruit contains milky latex, the dried latex is known as papain which is in great demand in the international market particularly in UK and U.S.A. The papain used in meat tendering, manufacturer of chewing gum and cosmetics, as a drug for digestive, aliments in the tanning industry for bating hides, for de-gumming materials in silk and to give shrink resistance to wool. The nutrition of papaya differs from other fruit crops because of its quick growth, continue fruiting habit and high fruit yield. Frequent and efficient manuring of young and mature plant is essential to maintain the health and to obtain profitable yield. The foliar application of micronutrients has gained importance in recent years, because of it is based on fact that in this way micronutrients reaches directly to leaves, which are the site of metabolism. Inspite of this, they are made available to plant at proper time when it is needed. It is, therefore, essential to evaluate the effect of various micronutrients and their combination on plant growth, yield and fruit quality for their commercial application.

MATERIALS AND METHODS

The experiment was carried out on newly planted papaya orchard during the year 2007-08 and experimental site is located at Main Experiment Station, Narendra Deva University of Agriculture and Technology, Kumarganj Faizabad (U.P.). The soil of experimental field was sodic in nature having E.C. 17.30 mmhos, pH 8, N_2, P_2O_5, K_2O (180.5, 25.1, 220.75 kg/h, respectively) and organic carbon 0.35 per cent. Eight treatments *viz.*, T_1-Control (Water spray), T_2- Copper sulphate 0.25 per cent, T_3- Manganese sulphate 0.25 per cent, T_4- Borax 0.1 per cent, T_5- Copper sulphate 0.25per cent + Manganese sulphate 0.25 per cent, T_6- Copper sulphate 0.25 per cent + Borax 0.1 per cent, T_7- Manganese sulphate 0.25 per cent + Borax 0.1