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Effect of plant growth regulators and fungicides on chemical composition on Nagpur Mandarin

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SUMMARY

Two trees of Nagpur mandarin were taken as a treatment unit and replicated four times. Randomly ten fruits were selected from dropped and retained fruits on tree in September, October and November and comparative quality analysis was carried out. Regarding average weight, volume of fruit, juice and TSS, treatment T_5 (2,4-D 10 ppm + Carbendazim 0.1%) was found to be significantly superior and produced fruits with maximum 157.56 g, 170.99 cc, 55.28 % and 10.28%, respectively. Significantly minimum acidity percentage of fruit juice (0.82%) was obtained with the application of T_5 (2, 4-D 10 ppm + Carbendazim 0.1%) and ascorbic acid content in fruit juice was not significantly influenced by the application of plant growth regulators and fungicides.

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Maharashtra stands first in area under citrus cultivation *i.e.* 1.54 lakh ha followed by Andhra Pradesh, Punjab, Karnataka, Uttar Pradesh and Bihar. Maharashtra stands first in area, its productivity is low *i.e.* 7.5 tonnes/ha. Citrus fruits are highly regarded for their nutritive as well as medicinal values. Different citrus species have different chemical composition, sugar (glucose and sucrose) and acids are main parts of sweet group while in acid group, citric acid and little malic acid are the main.

Nagpur mandarin blooms twice in a year *i.e.* in the month of February and June, the blooms in each are called as "Ambia bahar" and "Mrig bahar", respectively. If left to nature, the mandarin trees may bloom and fruit irregularly in any one or in both seasons and give irregular and spare fruiting. Fruit drop, particularly at pre-harvest stage is a very complex problem and is known to be the net result of lack of adequate production of hormones within the tissue of plant, nutrient deficiency and pathological causes resulting in heavy monitory loss.

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In India, the problem of pre-harvest fruit drop in citrus has not been tackled extensively, although some work using plant growth regulators only has been done, but hardly any attempt has so far been made to evaluate the relative efficacy of plant growth regulators when mix with other material. Very little attention has been paid to Nagpur mandarin and thus little information is available on the effect of plant growth regulators and fungicides on pre-harvest fruit drop in Nagpur mandarin.

The investigation of many research workers such as Sharma and Randhawa (1967), Jawanda *et al.* (1972) were observed that several plant growth regulators minimizes fruit drop to a considerable extent.

Keeping in view the past research work by using growth regulators and fungicides effect on quality, a very limited research work have been carried out on above aspect under this region particularly in Nagpur mandarin. Present investigation entitled "Effect of plant growth regulators and fungicides on chemical composition on Nagpur mandarin", was undertaken.

MATERIALS AND METHODS

The present study entitled "Effect of plant growth regulators and fungicides on chemical composition on Nagpur Mandarin was carried out on 18 year old Nagpur mandarin trees.

Climate and weather conditions:

Akola has got dry summer and moderately cold