Post flowering foliar sprays for advancing maturity and improving fruit retention in kokum (*Garcinia indica* Choisy)

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ABSTRACT

The experiment was conducted at Experimental Farm of the Department of Horticulture, Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli, Dist. Ratnagiri during 2006-07 to advance maturity and increase in fruit retention. The experiment was laid out under RBD with three replications and seven treatments of foliar application of nutrients in the form of urea, KNO₃ and monopotassium phosphate. In present investigation the fruits from trees treated with KNO₃ and urea showed increase in fruit retention while KNO₃ and monopotassium phosphate treated plants showed advanced maturity while urea treated plants showed delayed maturity.

Key words: Advanced maturity, Kokum, Urea, Monopotassium phosphate

**MATERIALS AND METHODS**

The experiment was conducted at Experimental Farm of the Department of Horticulture, College of Agriculture, Dapoli (Latitude : 17°45’ North, Longitude : 73°12’ East) in Ratnagiri district of Maharashtra, situated at 240 m above mean sea level. The study area was lying along the west coast region of India and the climate having high humidity throughout the year with equable temperature and an average precipitation, distributed mainly during four months from June to September. The soil was lateritic sandy to loam and acidic in reaction with pH ranging in between 5.6 to 6.5.

The experiment was laid out under RBD with three replications and seven treatments. The treatment comprising of T₁ : (Urea-0.5%), T₂ : (Urea-0.5% twice), T₃ : (KNO₃-0.5%), T₄ : (KNO₃-0.5% twice), T₅ : (Monopotassium phosphate 0.5%), T₆ : (Monopotassium phosphate 0.5% twice) and T₇ : Control (No spray). The plants were sprayed at pea grain stage of the fruits and the second one 20 days after the first spray. The observations on fruit retention (%), advancement in maturity (days) were recorded. The statistical analysis was conducted as per the methods suggested by Panse and Sukhatme (1967).

**RESULTS AND DISCUSSION**

The data on fruit retention and days required for ripening are presented in Table. The fruit retention was the highest in T₂ (69.33%) which was at par with T₄...
(67.17%) and significantly superior over rest of the treatments. Nitrogen is one of the essential nutrient required for retention of fruits. Several studies also indicated that foliar application of urea enhance fruit retention in mango (Gill and Mukherjee, 1967; Podhiar et al., 1992; Gosh and Chattopadhyay, 1999). The fruits of T6 ripened 34 days earlier than control (126 dyas). Both monopotassium phosphate and potassium nitrate at all the levels advanced ripening in kokum. It was evident that in kokum, potassium and phosphorus advances maturity and nitrogen delays maturity. The results are in agreement with the findings of Samara et al. (1977) in mango and Bose et al. (1988) in grapes.

**Conclusion:**

It can therefore, be concluded that nitrogen is one of the essential nutrient required for the retention of fruits. Nutrient application also brought about an increase in the chlorophyll conten, RWC, transpiration rate and diffusive resistance. So in present investigation the fruits from trees treated with KNO₃ and urea showed increase in fruit retention. It was evident that in kokum, potassium and phosphorus advances maturity and nitrogen delayed maturity. In foliar feeding the nutrients are applied directly to the site of metabolism. Whereas ‘K’ acts as a catalyst which is used as accelerator of reactions. So these treatments were a step ahead to reduce days required for harvesting.

<table>
<thead>
<tr>
<th>Treatments (Conc.@0.5%)</th>
<th>Fruit retention (%)</th>
<th>Days required for ripening</th>
<th>Advancement or delay in harvesting of kokum fruits over control</th>
</tr>
</thead>
<tbody>
<tr>
<td>T₁ – Urea once</td>
<td>63.00 (51.45)</td>
<td>128.00</td>
<td>0</td>
</tr>
<tr>
<td>T₂ – Urea twice</td>
<td>69.33 (56.41)</td>
<td>130.33</td>
<td>-4.33</td>
</tr>
<tr>
<td>T₃ – KNO₃ one</td>
<td>62.83 (52.44)</td>
<td>117.33</td>
<td>-8.67</td>
</tr>
<tr>
<td>T₄ – KNO₃ twice</td>
<td>67.17 (55.08)</td>
<td>115.50</td>
<td>-10.5</td>
</tr>
<tr>
<td>T₅ – MPP once</td>
<td>60.67 (51.16)</td>
<td>112.33</td>
<td>-13.67</td>
</tr>
<tr>
<td>T₆ – MPP twice</td>
<td>63.67 (52.95)</td>
<td>92.00</td>
<td>-3.4</td>
</tr>
<tr>
<td>T₇ – Control</td>
<td>60.17 (50.86)</td>
<td>126.00</td>
<td>128.00</td>
</tr>
<tr>
<td>S.E. ±</td>
<td>1.16</td>
<td>2.14</td>
<td>6.61</td>
</tr>
<tr>
<td>C.D. (P=0.05)</td>
<td>3.57</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* MPP – Monopotassium phosphate

**REFERENCES**


