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# Influence of canopy position of fruit on seed and seedling quality characters of amla (*Emblica officinalis* Gaertn.)

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**Abstract :** Studies were made with Emblica to trace the influence of canopy position of fruit on seed and seedling qualitites for three years. The results expressed fruit and seed characters of top canopy were superior compared to medium and bottom. An increasing trend was evident with increase in years of collection in fruit and seed characters. But seedling characters were found to be independent of years of collection. *(Key Words : Seed collection, Canopy, Seed quality)*

Amla (*Emblica officinalis* Gaertn.) is an important tree of medicinal value. Swaminathan et al. (1991) foundout that in *Acacia mellifera* fruits collected from top of the crown (canopy) was superior to seeds collected from other positions. Dharmalingam et al. (1988) observed higher germination and vigour of coffee seeds collected from lower 1/3 position of the plant. Hence studies were made in Emblica to trace the influence of canopy position on seed and seedling quality characters which could aid in stringent selection of fruits for seeds which could give rise to elite seedlings at nursery.

## Materials and Methods

Twenty five year old trees of amla (*Emblica officinalis* Gaertn.) situated at Agricultural Research Station, Bhavanisagar were selected for the study. At peak fruiting season (Jan-Mar.) the crown canopy of the tree was divided into 3 positions viz., top, middle and bottom based on the total height of canopy. Then climbing on to the tree, fruits were collected from top, middle and bottom portions. The fruits of individual trees were pooled as top, middle and bottom. Then observations were made on fruit seed and seedling characters viz., fruit weight (g), stone weight (g), seed weight/fruit, 100 seed weight (g), filled seed percentage (empty seeds were removed by water floatation technique and filled seeds which sank to the bottom are called sinkers) germination (ISTA, 1999), dry matter production seedling $^{-10}$ (mg) and vigour index (Abdul Baki and Anderson, 1973) were made on each category with 50 fruits of 4 replications. The data were collected

similarly for 3 consecutive years for confirmation of results. They were analysed as per Panse and Sukhatme (1967) for reporting the level of significance.

## Results and Discussion

The results obtained were highly significant for all the fruit, seed and seedling quality characters. The fruit weight was more in top position (11.327 g) and was followed by middle (10.975 g) and bottom position (10.081 g). The stone weight, seed weight fruit $^{-1}$ and 100 seed weight were also more in fruits of top canopy than other positions (Table 1).

The filled seed percentage was maximum in top canopy (80%) and minimum in bottom position (58%). In line with filled seed the germinability was in top position (95%) and was followed by middle (90%) and bottom position (81%). The dry matter production seedling $^{-1}$ (mg) and vigour index values were also in similar trend, highlighting the superiority of seeds collected from the top of the canopy (Table 2). Troup (1921) expressed that Emblica is a light requiring crop for effective seed set.

Hence this could be the reason for the better performance of top positioned fruits/seeds compared to fruits/seeds in other positions.

Among the years of collection fruit and nut weight decreased with year of collection while seed weight fruit$^{-1}$ which is an indicator of seed set increase with ageing of seeds. Similarly the 100 seed weight expressed steady increment over years of collection. Filled seed and germination percentage increased in line with seed set and higher seed weight with years of collection which might be due to ageing of the selected trees. Jayaraj *et al.* (1989), Dharmalingam and Vijayakumar (1991) respectively in sapota and citrus reported that younger trees are inferior in seed characters than older trees. But vigour of seedling evaluated through seedling characters vary widely with years of collection owing to their independency over viability characters (Agrawal, 1995). Seal *et al.* (1965) revealed that seeds of good year were higher in germination and would retain viability longer than those collected in bad years (Schrock, 1957 and Stern, 1961). In the present study also the higher germinability of seeds due to position of fruit and year of collection might be due to the higher seed set which is dependent on the climatic variation prevailing during maturation.

**Table 1.** Influence of crown position on fresh weight fruit$^{-1}$, fresh weight of nut freuit$^{-1}$, fresh weight of seed fruit$^{-1}$, 100 seed wight of amla

| Position (P) | Fresh weight fruit$^{-1}$(g) | | | | Fresh weight fruit$^{-1}$(g) | | | | Fresh weight fruit$^{-1}$(g) | | | | 100 seed weight (g) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Year (Y) | | | | Year | | | | Year | | | | Year | | | |
| | 1994 | 1995 | 1996 | Mean | 1994 | 1995 | 1996 | Mean | 1994 | 1995 | 1996 | Mean | 1994 | 1995 | 1996 | Mean |
| Top | 12.615 | 11.068 | 10.328 | 11.337 | 0.888 | 0.853 | 0.779 | 0.841 | 0.114 | 0.125 | 0.134 | 0.124 | 1.925 | 2.050 | 2.194 | 2.056 |
| Middle | 12.194 | 10.805 | 9.916 | 10.975 | 0.770 | 0.620 | 0.589 | 0.659 | 0.103 | 0.114 | 0.127 | 0.115 | 1.696 | 1.911 | 2.152 | 1.919 |
| Bottom | 10.650 | 10.612 | 8.983 | 10.081 | 0.795 | 0.665 | 0.564 | 0.684 | 0.077 | 0.104 | 0.099 | 0.093 | 1.681 | 1.727 | 1.633 | 1.680 |
| Mean | 11.819 | 10.806 | 9.746 | | 0..818 | 0.713 | 0.643 | | 0.098 | 0.114 | 0.120 | | 1.767 | 1.896 | 1.993 | |
| | | CY | P | YP | | Y | P | YP | | Y | P | YP | | Y | P | YP |
| CD (P = 0.05) | | 0.082 | 0.082 | 0.0141 | | 0.005 | 0.005 | 0.008 | | 0.001 | 0.001 | 0.002 | | 0.016 | 0.016 | 0.028 |

**Table 2.** Influence of crown position on sinker seed, germination, dry matter production 10 seeding$^{-1}$ and vigour index of amla

| Position (P) | Sinker seed (%) | | | | Germination (%) | | | | Drymatter production (mg) | | | | Vigour index | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Year (Y) | | | | Year | | | | Year | | | | Year | | | |
| | 1994 | 1995 | 1996 | Mean | 1994 | 1995 | 1996 | Mean | 1994 | 1995 | 1996 | Mean | 1994 | 1995 | 1996 | Mean |
| Top | 76 (60.67) | 81 (64.16) | 83 (65.65) | 80 (63.43) | 95 (77.08) | 97 (80.03) | 94 (75.82) | 95 (77.48) | 83 | 79 | 81 | 81 | 1729 | 1736 | 1673 | 1713 |
| Middle | 66 (54.33) | 66 (54.33) | 72 (58.05) | 68 (55.55) | 87 (68.87) | 91 (72.54) | 91 (75.54) | 90 (71.19) | 77 | 75 | 81 | 78 | 1544 | 1579 | 1588 | 1570 |
| Bottom | 56 (48.45) | 63 (52.54) | 54 (47.29) | 58 (49.37) | 80 (63.43) | 83 (65.65) | 79 (62.73) | 81 (63.87) | 76 | 76 | 76 | 76 | 1316 | 1370 | 1288 | 1325 |
| Mean | 66 (54.33) | 70 (56.79) | 70 (56.79) | | 87 (69.79) | 90 (72.74) | 88 (70.36) | | 79 | 76 | 79 | | 1530 | 1562 | 1516 | |
| | | Y | P | YP | | Y | P | YP | | Y | P | YP | | Y | P | YP |
| CD (P = 0.05) | | 1.57 | 1.57 | 2.72 | | 1.68 | 1.68 | 0.97 | | 1.20 | 1.207 | 2.07 | | 25.27 | 25.27 | 43.77 |

(Figures in parentheses indicate arc sine transformed values)

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# Marketing bheaviour of flower Cultivators

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**Abstract:** The study was undertaken to know the marketing behaviour of flower cultivators and constraints in marketing of flowers among 120 flower cultivators in Nilakkottai block of Dindigul district, Tamil Nadu. The study reveals that majority (54.17%) of the flower cultivators preferred polythene bag as the packing material. With regard to mode of transport, 45.83 per cent of flower cultivators transport the flowers through bicycle to the market, majority (71.67%) of the flower cultivators sold their produce at nearby town and 29.33 per.cent of the respondents sold their produce at distant towns and preferred to sell their produce through commission agents. Nearly three-fourths (70%) sold their produce for credit. More than one-third (41.67%) of the respondents brought their produce to the market within the range of 5 to 10 km distance. More than half (51.67%) of the respondents reported that receipt of advance was the reason for the selection of market. Regarding constraints in marketing, the foremost and predominant problems faced by majority of the flower cultivators were the price fluctuations (73.33%), more commission (60%) inadquate transport facilities (56.67%), improper weighment (55%), poor link road facilities (47.50%), delayed payment (43.33%) a price fixed by commission agents (40%), high cost of transport (25.83%) and lack of cold storage facilities (23.33%). *(Key Words: Marketing, Flower Cultivators)*

Commercial floriculture is the most profitable agro-industry in many developed countries. The present domestic retail sale of floriculture produfts is about Rs. 250 crores and the share of modern cutflowers is about Rs. 100 crores. Flowers are estimated to be grown at about 25,000 ha in India and the major flowers are Jasmine, Chrysanthemum, Rose, Crosandra, Marigold and Tuberose. The market influences production primarily through the returns they offer to producers. For examining the influnce of markets on production in India, it would be useful to classify the flowers based on the end use they are put to. A right package of technical inputs, policy initiatives, market development and concerned actions can definitely make India force to reckon with the global floriculture trade. In order to gain a thorough understanding of the factors that influenced the marketing of flowers, this study was undertaken with the following objectives: