

# Performance of some aonla (*Emblca officinalis* Gaertn) cultivars under Vidarbha condition of Maharashtra

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## SUMMARY

An experiment was conducted with eight varieties of aonla viz., NA-6, NA-10, Kanchan, Krishna, Fransis, Chakaiya, Banarasi and NA-7 grown at Regional Fruit Research Station, Katol, dist. Nagpur (Dr. Panjabrao Deshmukh Krishi Vidyapeeth) were studied for growth, yield and quality parameters. Pooled analysis indicated that variety NA-7 had given the highest fruit yield, followed by Kanchan and Chakaiya, while, the fruits of better quality were obtained from variety Chakaiya and NA-10.

**Key words :** Aonla varieties, Growth, Yield, Quality

Aonla (*Emblca officinalis* Gaertn) is indigenous to tropical Asia and it can be successfully grown in area where tropical as well as dry conditions prevail. Aonla plant can tolerate freezing as well as temperature as high as 40°C (Sankar, 1969). As it suits to tropical conditions, it does well in Vidarbha region of Maharashtra state where some of the commercially important varieties of Aonla are being grown.

In Maharashtra, Aonla plants can survive better and given good returns with minimum precipitation in this region because after fertilization, in the February-March, the ovary of Aonla fruit lies in dormant phase up to end of July. After this period fruit size start increasing.

However, the fruit growers of this region are in need of specific variety which will give the higher yield of quality fruits. In view of this, an experiment was conducted from 2000-01 to 2003-04 to study the growth and bearing performance of Aonla varieties under Vidarbha conditions.

## MATERIALS AND METHODS

Present studies were carried out at Regional Fruit Research Station, Katol, dist. Nagpur (Dr. Panjabrao Deshmukh Krishi Vidyapeeth) during 2000-01 to 2003-04. The soil of experimental field was light to medium sandy loam. Rainfall during 2003-04 was 354 mm during rainy season, which was 57.02 per cent less than the normal rainfall (824.60 mm). Eight aonla varieties viz., NA-6, NA-10, Kanchan, Krishna, Fransis, Chakaiya, Banarasi

and NA-7 brought from Faijabad (U.P.) and planted during 1994 in a square system at 6 x 6 m spacing and recommended package of practices were followed for establishment of orchard.

No any irrigation was given to the orchard. The experiment was formed in randomized block design with three replications having three plants as treatment unit. Observations were recorded on growth (Height and volume of plant), yield per plant, yield per hectare and quality parameters, viz., fruit weight, fruit size, pulp weight, seed weight and vitamin 'C' content in the fruits. The fruits on each harvesting of tree of each variety were weighed and per tree fruit yield was recorded. The harvesting season in each year was from November to December.

Twelve mature fruits were taken randomly from each direction of each variety and these fruits were used for physico-chemical analysis viz., fruit weight, fruit size, pulp weight, seed weight and Vitamin 'C' content in fruits.

## RESULTS AND DISCUSSION

The results obtained from the present investigation are presented below:

### Growth performance:

It is revealed from the data presented in Table 1 that different varieties of Aonla had exhibited significant differences in plant height and plant volume.

Data presented in Table 1 showed a significant differences in respect of plant height and plant volume. Significantly maximum plant height was recorded in the variety Fransis followed by NA-6 and minimum plant height was recorded in variety NA-10 followed by NA-7. However, significantly highest plant volume was recorded by Fransis followed by Kanchan and minimum

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**Table 1 : Mean performance (pooled) of Aonla cultivars for growth and yield**

Cultivars	Growth		Yield	
	Plant height (m)	Volume (Cu.m)	Fruit yield plant <sup>-1</sup> (kg)	Fruit yield ha <sup>-1</sup> (kg)
NA-6	4.87	30.26	9.75	2660.57
NA-10	4.12	37.21	15.47	4298.02
Kanchan	4.64	40.75	20.12	5674.37
Krishna	4.34	35.13	14.88	4066.32
Fransis	5.05	43.13	14.20	3894.57
Chakaiya	4.49	34.87	18.07	5019.76
Banarasi	4.47	32.52	12.96	3602.44
NA-7	4.27	38.83	20.57	5714.88
S.E.±	0.037	0.33	0.29	5.82
C.D. (P=0.05)	0.105	0.95	0.90	17.36

plant volume was recorded in variety NA-6 followed by Banarasi.

#### **Fruit yield:**

Data presented in Table 1 revealed that yield per plant and yield ha<sup>-1</sup> showed significant differences among the different varieties of Aonla. Significantly maximum fruit yield was recorded in variety NA-7 followed by Kanchan, Chakaiya and NA-10, while, minimum fruit yield was recorded in variety Banarasi. Similar results were reported in Aonla by Singh *et al.* (1989 and 1993) in U.P., Aulakh *et al.* (1977) in Punjab, Supe *et al.* (1997) and Shete *et al.* (1999) in Maharashtra.

#### **Quality of fruits:**

Data presented in Table 2 revealed that, maximum weight of fruit and pulp weight were recorded in the variety Chakaiya followed by Banarasi and NA-10. However, minimum weight of fruit was recorded in NA-6. Significantly lowest seed weight was recorded in variety Banarasi followed by Kanchan and Chakaiya. As

**Table 2 : Mean performance of Aonla cultivars for quality**

Cultivars	Fruit weight (g)	Seed weight (g)	Pulp weight (g)	Ascorbic acid content (mg100 <sup>-1</sup> g)
NA-6	25.63	2.00	23.63	481.00
NA-10	34.94	1.91	33.02	495.33
Kanchan	32.00	1.63	31.27	533.00
Krishna	29.75	1.91	28.04	521.33
Francis	29.60	2.01	27.59	533.66
Chakaiya	42.02	1.83	40.18	533.66
Banarasi	37.30	1.16	36.13	512.66
NA-7	30.82	1.85	28.96	525.00
S.E.±	1.03	0.059	1.03	5.573
C.D. (P=0.05)	3.19	0.184	3.18	15.652

regard the ascorbic acid content in fresh fruit, variety Chakaiya, Fransis, Kanchan and NA-7 recorded maximum values of ascorbic acid content in fresh fruit and these varieties were at par with each other. Similar results we reported by Teatota *et al.* (1968), Singh *et al.* (1989), Aulakh *et al.* (1997), and Shete *et al.* (1999) in Aonla.

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