

Effect of harvesting stages on growth and yield of satavari (*Asparagus racemosus* Wild)

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SUMMARY

Satavari is an indigenous medicinal plant used in *Siddha* and Homoeopathy medicines. Due to its multiple uses, the demand for *Asparagus racemosus* is constantly on the rise. The field experiment was conducted at Centre of Excellence on Medicinal and Aromatic Plants Project, Anand Agricultural University, Anand (Gujarat) using Randomized Block Design (RBD) with four replications. The fasciculated root yield which is the economic part of the plant was the highest at 24 months of growth both in fresh and dry weights. Further, it was recommended that the planting should be done in the month of September and thereby harvesting at 24 months of planting *i.e.* in the month of August. After the age of 24 months of planting the roots degenerate and thus it shows decreasing growth trend for all the growth parameters.

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Key words : Satavari, Growth, Asparagus, Root yield

Satavari roots are used mainly as galactagogue which stimulates the secretion of breast milk. It is considered both as a general tonic and a female reproductive tonic. In veterinary medicine, it is chiefly used as a demulcent. Due to its multiple uses, the demand for *Asparagus racemosus* is constantly on the rise. Because of destructive harvesting, combined with habitat destruction and deforestation the plant is now considered 'endangered' in its natural habitat and the availability of those species is reduced. Considering this and increasing demand this species may come under cultivation (Goyal *et al.*, 2003). For cultivation, it is important to find out proper stage of harvesting to get maximum dry root yield. Therefore, present study was intended as an effort in this direction.

MATERIALS AND METHODS

The experiment was planned to study the effect of harvesting stages on growth and yield of satavari from

Kharif-2006 to Kharif-2009 at Centre of Excellence on Medicinal and Aromatic Plants Project, Anand Agricultural University, Anand (Gujarat) using Randomized Block Design (RBD) with four replications. Observations were taken after every consecutive three month, starting from the age of 18 to 36 month of planting served as treatments. Observations like plant height (cm), number of shoots per hill, number of fasciculate roots/ plant were taken on randomly selected five plants while length of fasciculate roots (cm), girth of fasciculate roots (cm), fresh weight of fasciculate roots (kg/ha) and dry weight of fasciculate roots (deskins) (kg/ha) was taken on the same selected five plant's roots (five roots). Recommended dose of fertilizers was applied.

RESULTS AND DISCUSSION

The experiment was conducted to find out the proper harvesting stages to get high dry fasciculate root yield of satavari. The seedling was prepared by sowing seeds in polythene bag and watering was done as per requirement. Transplanting was done after 45 days of sowing. All the recommended agronomical practices were followed. The roots come to maturity in about 12-14 months after planting depending upon the soil and climatic conditions.

A perusal of data manifested in Table 1 showed that the plant height, number of shoots per hill, number of fasciculate roots/ plant, length of fasciculate roots, girth of fasciculate roots, fresh weight of fasciculate roots and

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Table 1: Effect of harvesting stages on growth and yield of satavari (*Asparagus racemosus* Wild)

Stages (Harvesting)	Plant height (cm)	No. of shoots per hill	No. of fasciculate roots/ plant	Length of fasciculate roots (cm)	Girth of fasciculate roots (cm)	Fresh wt. of fasciculate roots (kg/ha)	Dry wt. of fasciculate roots (deskined) (kg/ha)
18 months of planting Feb-08	103.68	8.20	93.80	10.29	3.83	26544	2944
21 months of planting May-08	134.43	8.85	99.75	15.63	3.85	29013	3654
24 months of planting Aug-08	164.33	14.25	210.50	26.83	4.45	71607	10237
27 months of planting Nov-08	159.15	12.35	202.45	24.00	4.33	38273	6981
30 months of planting Feb-09	150.18	10.90	188.20	19.00	3.80	23457	4775
33 months of planting May-09	152.30	9.73	150.00	12.00	1.83	14815	3093
36 months of planting Aug-09	152.00	6.65	140.00	8.0	0.98	12346	2117
S.E.±	4.66	0.42	4.00	0.74	0.11	1424.88	198.44
C.D.	13.85	1.24	11.90	2.21	0.33	4233.71	589.61
CV (%)	6.42	8.22	5.17	9.00	6.73	9.23	8.22

dry weight of fasciculate roots (deskined) were in the range of 103.68 to 164.33 cm, 6.65 to 14.25, 93.80 to 210.50, 8.00 to 26.83 cm, 0.98 to 4.45 cm, 12346 to 71607 kg/ha and 2117 to 10237 kg/ha, respectively. The fasciculate root yield which is the economic part of the plant, was the highest at 24 months of growth, both in fresh and dry weights (71607 and 10237 kg/ha). It was observed that all the growth parameters have been increased significantly upto the age of 24 months of planting thereby it showed decreasing trend till the end of

the experimental period *i.e.* 36 months (3 years). Because after the age of 24 months of planting the roots degenerated and thus it showed decreasing growth trend for all the growth parameters. Similar results in *Asparagus officinalis* were reported by Hussain *et al.* (2006).

Finally it was concluded/ recommended that the planting of satavari should be done in the month of September and harvest at 24 months of planting *i.e.* in the month of August.

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