



Research Note

## Effect of bulky and concentrated organic manures yield and economics of safed musli (*Chlorophytum borivillianum*, sant. and fern.)

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**Abstract :** An investigation was carried out on loamy sand soil during *Kharif* season of the year 2008-09 to study the effect of bulky and concentrated organic manures yield and economics of Safed musli under semi-arid hot region at Anand. Application of vermicompost @ 2 t/ha along with *Azotobacter* gave significantly the higher fasciculated root yield (4444 kg/ha) which was at par with application of castor cake @ 1 t/ha either alone or along with *Azotobacter* and application of neem cake @ 750 kg/ha along with *Azotobacter*. Regarding economics of different treatments, treatment T<sub>4</sub> (vermicompost @ 2 t/ha+ *Azotobacter*) recorded maximum net realization, CBR and NCBR (Rs.1093418, 1: 5.5, 1: 4.5, respectively) followed by treatment T<sub>6</sub> and T<sub>10</sub> (Rs. 1000918, 1: 5.1 and 1: 4.1 and Rs.981698, 1: 5.1 and 1: 4.1, respectively). The lowest net realization, CBR, Net CBR was observed under treatment of T<sub>11</sub> (Rs.97138, 1: 1.4 and 1: 0.4, respectively).

**Key Words :** Safed musli, Organic manures, Fasciculated root yield

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Safed musli (*Chlorophytum borivillianum*) is an important endear medicinal plant with high demand. The fasciculated roots of safed musli have medicinal properties and used in Indian system of medicine. Fasciculated roots are used for the preparation of nutritive tonic used in general sexual weakness. The drug is considered as a valuable nerve and general tonic for strength and vigour. Safed musli have been named in Atherva veda as one of the devine herbs offering curve for many ailments and health related problems. Its demand is increasing rapidly in the international drug market. Foreign demand has been estimated as 300-700 tons annually. Its demand is over 35000 tons but supply about 5000 tons only. There is a need to

improve productivity of safed musli by adopting proper package of practices. With keeping in view the above consideration an experiment entitled as studies on effect of bulky and concentrated organic manures yield and economics of safed musli grown on lomy sand soil had been conducted in the field.

The field experiment was conducted at B. A. College of Agriculture, Anand Agriculture University, Anand (Gujarat), India during year 2008-09. Five organic manures *viz.*, FYM @ 5t/ha, vermicompost @ 2 t/ha, castor cake @ 1 t/ha, poultry manure @ 1 t/ha and neem cake @ 750 kg/ha alone or along with *Azotobacter* treatment were applied and these treatments were compared with control. Treatments were tested in Randomized Block Design with three replications. A new identified variety Anand Safed Musli-1 (ASM-1) was used. Fasciculated roots were planted in the June on beds. The gross plot size was 3.6m x 1.50 m for each treatment. Well written Farnyard manure, vermicompost, castor cake, neem cake, poultry manure were applied before planting and *Azotobacter* was applied as a root treatment by root dipping for 15-20 minutes. Uniform cultivation practices were

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**Table 1 : Total cost incurred for different treatment combinations**

Treatments	Yield (kg/ha)	Gross realization (Rs./ha)	Common cost (Rs./ha)	Treatment cost (Rs./ha)	Total cost (Rs./ha)	Net realization (Rs./ha)	CBR	Net CBR
5t FYM/ha	1894	568200	233462	2750	236212	331988	1: 2.4	1: 1.4
5t FYM /ha + Azo.	3446	1033800	233462	2870	236332	797468	1: 4.3	1: 3.3
2t vermicompost/ha	2973	891900	233462	6200	239662	652238	1: 3.7	1: 2.7
2t verm. /ha + Azo.	4444	1333200	233462	6320	239782	1093418	1: 5.5	1: 4.5
1 t castor/ha	3934	1180200	233462	5700	239162	941038	1: 4.9	1: 3.9
1 t castor/ha + Azo	4134	1240200	233462	5820	239282	1000918	1: 5.1	1: 4.1
1 t poultry man./ ha	3081	924300	233462	3200	236662	687638	1: 3.9	1: 2.9
1 t poultry/ ha + Azo.	2949	884700	233462	3320	236782	647918	1: 3.7	1: 2.7
750 kg neem /ha	1646	493800	233462	3920	237382	256418	1: 2.0	1: 1.0
750 kg neem /ha+Azo.	4064	1219200	233462	4040	237502	981698	1: 5.1	1: 4.1
Control	1102	330600	233462	-	233462	97138	1: 1.4	1: 0.4

Note: Cost of organic manures: FYM @ 5 t/ha (510 Rs. /t = Rs.2550), Vermicompost @ 2 t/ha (3000 Rs. /t = Rs. 6000)

Castor cake @ 1 t/ha (5500 Rs. /t = Rs.5500), Poultry manure @ 1 t/ha (3000Rs. /t = Rs.3000)

Neem cake @ 750 kg/ha (4960 Rs. /t = Rs.3720), Azotobactor @ 1 lit. /ha (100 Rs.)

Selling price fasciculated root of Safed musli = Rs. 300 /kg

followed during the growth period of crop. Fasciculated root yield of safed musli were recorded. The cost benefit ratio (CBR) and net benefit cost ratio (NCBR) were calculated by an incremental cost of organic manures and bio fertilizers under different treatments and benefit obtained through an increase in production due to the respective treatments.

Result presented in Table 1 recorded that organic manures had a pronounced effect on fasciculated root yield of safed musli. Application of vermicompost @ 2 t/ha along with *Azotobactor* showed significantly higher fasciculated root yield (4444 kg/ha) of safed musli which was at par with application of castor cake @ 1 t/ha along with *Azotobactor*, application of neem cake @ 750 kg/ha along with *Azotobactor* and application of castor cake @ 1 t/ha. This might be due to availability of plant nutrients for a longer period at different plant growth stages up to the maturity period which helped in root development. Higher nitrogen and phosphorus content of vermicompost, poultry manure and castor cake might have beneficial effect on fasciculated root. The increase in fasciculated root yield might be due to the fact that organic manures which improved the physical condition of soil and provided better condition for uptake of nutrients which lead to better growth of plant. These results are in conformity of Chandrashekhara *et al.* (2000), Jayaprakash *et al.* (2003) and Paturde and Wankhede (2004).

Regarding economics of different treatments, treatment T<sub>4</sub> (vermicompost @ 2 t/ha + *Azotobactor*) recorded maximum net realization, CBR and NCBR (Rs. 1093418, 1: 5.5, 1: 4.5, respectively) followed by treatment T<sub>6</sub> and T<sub>10</sub> (Rs. 1000918, 1: 5.1 and 1: 4.1 and Rs.981698, 1: 5.1 and 1: 4.1, respectively). The lowest net realization, CBR, Net CBR was observed under treatment of T<sub>11</sub> (Rs. 97138, 1: 1.4 and 1: 0.4, respectively).

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