

Role of vermicompost in enhancing nutritional value of some cole crops

S.B. PADAMWAR AND H.G. DAKORE

Accepted : October, 2009

Key words : Cole crops, FYM, Vermicompost, Biofertilizers, Nutritional parameters

Cole crops (cabbage, cauliflower and knolkhol) were cultivated under the influence of organic fertilizers (FYM, Vermicompost, biofertilizers) to observe their effect on nutritional value of edible curd of cole crops. Application of vermicompost was found to be most beneficial in increasing the yield and quality of cole crops.

The use chemical fertilizers and chemical pesticides not only increase the cost of production but also reduce soil fertility. The toxic residues in the agriculture crops are also raising alarming signals amongst the health cautious buyers. The use of chemical fertilizers has been found to be associated with health hazardous problems. Subbarao and Ravisankar (2001) concluded that maximum fruit yield and dry matter production was found by application of FYM+ vermicompost in case of Brinjal. Patil (2007) found that highest grain yield was obtained with application of vermicompost in combination with biofertilizer in case of jowar. By keeping above aspect and previous work in mind, the present paper asses the effect of vermicompost, FYM, biofertilizers on nutritional quality of cole crops.

Cole crops (Cabbage-*Brassica oleracea var.capitata* cv. BAHAR; Cauliflower-*Brassica oleracea var.botrytis* cv. TUSHAR; Knolkhol- *Brassica caulera* cv. SUNGROW) were cultivated. An experiment was conducted on farm located at the bank of Godavari river,

Nanded, district of Maharashtra. The land (36 m²) was equally divided into 12 plots. The experiment was undertaken in randomised block design (RBD) with three replicates and four fertilizer treatments; T₁-control (no fertilizer); T₂-Farm yard manure (11.3 t/ha); T₃-Vermicompost (11.3 t/ha); T₄- mixture of biofertilizers (*Azotobacter*-Azab, phosphorous solublizing-bacteria PSB-Durga, Vesicular arbuscular mycorrhiza-VAM – Trishul all of multiplex @ 3kg/ha).

The sowing of seeds was done in nursery beds. Healthy seedlings were selected and transplanted on one side of ridges in the plots at a spacing of 45x 60 cm (Bose *et al.*, 2002). After establishment of the seedlings, fertilizer treatments were given. Fertilizers were applied twice, at 20 days interval after transplantation. The crop was raised under Irrigation and weeding was done whenever required. After harvesting vegetable crops, a sample (100 g) of the curd was chopped and dried in oven at 60⁰ ± 5⁰C, and per cent dry matter was recorded. The dry samples were ground to a fine powder. Protein content was estimated by Lowry's and carbohydrate by DNSA method (Plummer, 2006). Vitamin C (ascorbic acid) was estimated following Sadasivam and Manickam (2008) and Calcium content was estimated by (AOAC, 1970). The data were statistically analysed following Panse and Sukhatme (1978) and Mungikar (1997).

Table 1 : Effect of organic fertilizers on nutritional parameter of cole crop

Treatments	Cabbage					Cauliflower					Knolkhol				
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
T ₁	8.09	3	4.5	99.6	27.3	8.54	1.92	3.12	47.8	17.9	7.27	1.10	3.60	84.2	19.2
T ₂	8.65	3.6	6.6	149.2	40.7	10.07	2.85	4.76	67.2	36.4	8.03	1.48	4.13	92.9	26.4
T ₃	9.37	4.2	7.1	183.1	46.7	10.37	3.53	5.41	77.3	39.3	8.49	1.98	5.03	123.3	31.9
T ₄	8.12	3.6	6.4	159.8	39.2	9.75	2.95	4.44	66.4	35.7	8.08	1.48	4.29	97.5	28.8
C.D. (P=0.05)	0.69	0.23	0.51	22.0	1.79	1.18	0.10	0.23	0.88	1.92	0.08	0.13	0.17	8.12	0.67

T₁- control ; T₂ – FYM ; T₃- Vermicompost ; T₄ – mixture of fertilizers; A- Dry matter in % *i.e.* g / 100g ;

B- Carbohydrates in g /100g; C- Protein in g /100g ; D-Vitamin C in mg /100g ; E- Calcium in mg /100g

Correspondence to:

H.G. DAKORE, Department of Botany, P.N. College, NANDED (M.S.) INDIA

Authors' affiliations:

S.B. PADAMWAR, Department of Botany, N.S.B. College, NANDED (M.S.) INDIA

The results obtained on nutritional analysis of cole crops are presented in Table 1. There was significant increase in per cent dry matter, protein, carbohydrate, vitamin C and calcium content of curd of all cole crops due to application of vermicompost fertilizers. Thus

Vermicompost plays important role in increasing nutritive value of edible curd of cole crops, though application of

FYM and mixture of biofertilizers were also found beneficial.

REFERENCES

- A.O.A.C.(1970). Official Methods of Analysis, 11th Edⁿ. Association of Official Analytical Chemists, Washington, D. C.
- Bose, T.K., Kabir, J., Maity, T.K. Parthasarathy, V.A. and Som, M.G. (2002). *Vegetable crops* Vol. 1, Naya Prokash, Kolkatta.
- Mungikar, A.M. (1997). *An Introduction to Biometry*, Saraswati printing Press, Aurangabad.
- Panse, V.G. and Sukhatme, P.V. (1978). *Statistical Methods for Agricultural Workers*, IV Edn. ICAR, New Delhi.
- Patil, N.N. (2007). Effect of Arbuscular mycorrhizae and vermicompost on yield and nutrient content of jowar (*Sorghum vulgare* pers.). *Bioinfolet*, **4** (2) : 113
- Plummer, D.T. (2006). *An introduction to practical biochemistry*. III Edn, Tata Mcgraw-Hill, New Delhi.
- Sadasivam, S. and Manickam, A. (2008). *Biochemical methods*, III Edn. New age international publishers, New Delhi.
- Subbarao, T.S. and Ravisankar, C. (2001). Effect of organic manures on growth and yield of brinjal. *South Indian J. Hort.*, **49** (special): 288-289.

