

Panchagavya: A Liquid Fertilizer for Organic Farming

Kushal Sachan

Ph.D. Scholar, Department of Soil Science and Agricultural Chemistry,
C.S. Azad University of Agriculture and Technology, Kanpur (Uttar Pradesh)

ARTICLE ID: 041

Introduction

Organic farming is based on the system-oriented approach and the use of organic liquid product like Panchgavya resulted in higher growth, yield and quality of crops and hence there had been an increasing interest in the use of liquid formulations. Panchgavya is one of the widely used traditional liquid organic formulations, which is a fermented product made from five ingredients obtained from cow, such as milk, urine, dung, curd and clarified butter.

- ✓ Panchgavya is a potential source to play great role for promoting growth and providing immunity in plant system. Bio-chemical properties of Panchgavya revealed that it possesses almost all the major nutrients like N, P, K and micro nutrients essential for plant and growth hormones like IAA and GA required for crop growth. Presence of naturally occurring, beneficial, effective microorganisms (EMO's) in Panchgavya predominantly and lactic acid bacteria, yeast, actinomycetes photosynthetic bacteria and certain fungi besides beneficial and proven fertilizers such as Acetobacter, Azospirillum and Phosphobacterium which have the beneficial effect especially in improving soil quality, growth and yield of crops. Panchgavya is a special preparation made from five by-products of cow along with certain other ingredients.
- ✓ The key feature of Panchgavya is its efficacy to restore the yield level of all crops when the land is converted from inorganic cultural system to organic culture from the very first year. The harvest is advanced by 15 days in all the crops. It not only enhances the shelf life of vegetables, fruits and grains, but also improves the taste. By reducing or replacing costly chemical inputs, Panchgavya ensures higher profit and liberates the organic farmers from loan.

Ingredients Used For Preparation of Panchgavya

Fresh cow dung	10 kg
Cow urine	10 lit
Cow milk	2 lit
Cow curd	2 lit
Cow ghee	1 kg
Tender coconut water	3 lit
Sugarcane juice	3 lit
Ripened banana	12 numbers
Yeast	100 gm

PROTOCOL FOR PANCHGAVYA PREPARATION

Mix thoroughly fresh cow dung (7kg) + Cow ghee (1 kg)



Incubate for 2 days



Add Cow urine (3 lit) + 10 lit of water



Stir properly (morning and evening, daily for 1 week)



Add Sugarcane juice (3 lit)



Add Cow milk (2 lit)



Add Cow curd (2 lit)



Add coconut water (3lit)



Add yeast 100 gram and 12 ripened bananas

Note

The whole mixture is to be incubated for two weeks and the preparation should be filtered through double layered muslin cloth and stored in bottle under refrigerator and used as and when required The container should be kept open under shade. The content is to be stirred twice a day both in morning and evening. It should be kept in the shade and covered

with a wire mesh or plastic mosquito net to prevent houseflies from laying eggs and the formation of maggots in the solution. If sugarcane juice is not available add 500 g of jaggery dissolved in 3 litre of water.

Properties of Panchagavya :

Days	Available nutrient status (%)					Physical properties		Microbial population (=× cfu ml ⁻¹)		
	N	P	K	Ca	Mg	EC (dsm ⁻¹)	pH	Bacteria (10 ⁶)	Fungi (10 ⁴)	Actinomycetes (10 ³)
0	0.18	0.02	0.24	0.54	0.81	0.62	6.47	10	4	8
7	0.32	0.13	0.41	1.01	1.16	0.73	6.53	21	9	16
14	0.62	0.12	0.53	1.15	1.13	0.98	6.72	38	14	18
21	0.97	0.28	0.65	1.31	1.63	1.20	6.83	110	25	21
28	0.77	0.18	0.45	1.24	1.28	1.78	6.92	68	22	20

(Source:Suchitra et al.2017)

Method of application

- ✓ *Foliar spray*: 3% foliar spray of Panchgavya is recommended for all the crops.
- ✓ *Soil application*: Panchgavya can also be effectively applied in the soil with irrigation water. Panchgavya @50 lit./ha is recommended for soil application with irrigation water.
- ✓ *Seed treatment*: seeds of different crops can be treated with 3% solution of Panchgavya. Seeds should be soaked for half hour and dried under shade and sown.

Time of application:

- ✓ For the field crops five Panchgavya application are suggested for better results.
- ✓ Before flowering: Two foliar spray at 15 days interval
- ✓ Flowering and grain setting stage: Two foliar spray at 10 days interval
- ✓ Grain /fruit development stage: one foliar spray

Advantages of Panchagavya

- ✓ Branching is relatively high
- ✓ The rooting is prolific and intense
- ✓ It improves water holding capacity

- ✓ It encourage growth and reproduction of beneficial soil microorganism
- ✓ Eco friendly approach
- ✓ Improves soil health and fertility
- ✓ It is used against pest and diseases.

DifficultiesIn Adopting Panchagavya

- ✓ Slow action
- ✓ Sometimes during fermentation contamination occurs
- ✓ Lack of awareness and its uses

Conclusion

The increasing concern for environmental safety and global demand for pesticide residue free food has evoked keen interest in crop production using eco-friendly products which are easily biodegradable and do not leave any harmful toxic residues besides conserving nature. So it is necessary to use natural products like Panchagavya to produce chemical residue free food crops and hence Panchagavya can play a major role in organic farming.

References

Suchitra, R., Poonguzhali, S., Saranya, B., Suguna, S. and Jothibas, K. 2017. Effect of Panchagavya on Growth and Yield of *Abelmoschus esculentus* cv. Arka Anamika. *International Journal of Current Microbiology and Applied Sciences*, 6(9): 3090-3097.