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Panchagavya

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SUMMARY

Recently, panchagavya has become more and more popular in India, particularly in areas like Telangana, Andhra Pradesh, Karnataka, Tamil Nadu, Kerala, etc. for organic farming. It is a unique preparation that can perhaps help plants grow and provide immunity because it is prepared from five by-products of cows in addition to a few additional substances. It is essential to organic farming. The use of panchagavya has shown excellent results for a wide range of crops, including fruit crops, vegetables, plantation crops, and cash crops including sugarcane, turmeric, jasmine, and moringa. It has been observed that plants sprayed with panchagavya grow bigger leaves and a denser canopy. In order to support large yields, the stem creates more robust branches and lateral shoots and extensive, thick roots that reach deep strata. Better water and nutrient absorption is facilitated by roots. Plants require less than one-third of the irrigation at regular intervals since they can withstand prolonged droughts.

INTRODUCTION

A mixture of five products made from cow milk, ghee, curd, dung, and pee, known individually as "Gavya" and collectively as "panchagavya" in Sanskrit, is what is meant to be understood as an organic formulation. It is mentioned in the Vedas, which are divine texts containing wisdom from India, as well as the Vrikshayurveda (Natarajan, 2002).

Method of Preparation

Mix thoroughly the fresh cow dung (7kg + Cow ghee (1kg)
↓
Incubation for 2 days
↓
Add cow urine (3:1) + 10 litre of water
↓
Stir properly (morning and evening, daily for 1 weak)
↓
Add sugarcane juice (3 litre) or jiggery mixed in water at 1:6 ratio
+
Cow milk (2 litre)
+
Cow curd (2 litre)
+
Coconut water (3 litre)
+
Yeast (100 g) and 12-ripe banana
↓
Stir properly (morning and evening, daily for 3 weeks)

The above mentioned ingredients are added to a wide-mouthed mud pot, concrete tank, or plastic bucket kept the container open in a shaded area. The mixture should be shaken twice a day, in the morning and the evening. It's said that coconut water and sugarcane juice quickens the fermentation. Additionally, toddy quickens the fermentation process and reduces unpleasant odours. Two litres of tender coconut water must be preserved

for a week in an airtight plastic bottle before making toddy. If toddy is not available, 100 g of yeast powder can be used instead (Ram, 2017).

Ingredients of Panchagavya


Cow dung


Cow urine


Cow ghee


Milk


Water


Cow curd


Jaggery


Tender Coconut


Well ripened banana

Time of application of Panchagavya for different crops is given as follows:

Crops	Time schedule
Okra	30, 45, 60 and 75 days after sowing
Moringa	Before flowering and during pod formation
Tomato	Nursery and 40 days after transplanting: seed treatment with 1 % for 12 hrs
Onion	0, 45 and 60 days after transplanting

Methods of Application:

1. Foliar Application: In comparison to the higher and lower concentrations examined, the three percent solution proved to be the most efficient. For all crops, the recommended ratio is three litres of panchagavya to every 100 litres of water. The 10-liter power sprayers might use 300 millilitres each tank. Sediments must be filtered when using a power sprayer, and a nozzle with a larger pore size must be utilized when using a hand sprayer.

2. Through Irrigation: The solution of panchagavya can be mixed with irrigation water at 50 litres per hectare either through drip irrigation or flow irrigation.

3. Seed/Seedling Treatment: Prior to planting, the seeds or seedlings can be dipped in a 3% panchagavya solution. It is sufficient to soak for twenty minutes. Before planting, soak the rhizomes of ginger, turmeric, and sugarcane sets for half an hour.

4. Seed Storage: 3% of panchagavya solution can be used to dip the seeds before drying and storing them.

Periodicity of Application

S.No.	Stage of the Crop	Intervals of application
1	Pre flowering phase	Once in 15 days, two sprays depending upon duration of crops
2	Flowering and pod setting stage	Once in 10 days, two sprays
3	Fruit/Pod maturation stage	Once during pod maturation

Effect of Panchagavya on Vegetable Crops

On Leaf: A denser canopy and larger leaves are always developed by plants sprayed with panchagavya. Maximal metabolite and photosynthate synthesis is made possible by activating the photosynthetic system for increased biological efficiency.

On Stem: The trunk produces side shoots, which are sturdy and capable of carrying maximum fruits to maturity. Branching is comparatively high.

On Roots: There is a lot of dense rooting. They also stay fresh for a very long period. It was also observed that the roots grow and spread into deeper layers. All of these roots aid in maximizing nutrient and water intake.

On Yield: Normal conditions will cause a yield depression when the land is converted from inorganic cultural systems to organic farming. When land is converted from an inorganic cultural system to an organic one from the very first year on, panchagavya's main characteristic is its effectiveness in restoring the yield level of all crops. All crops have a 15-day head start on harvest. It improves the flavor of fruits, vegetables, and grains in addition to extending their shelf life. panchagavya guarantees greater profit and releases the organic farmers from debt by eliminating or substituting expensive chemical inputs.

Drought Hardiness: Water evaporation is decreased on the leaves and stems due to the formation of a thin, oily film. The plants' large, deep roots enable them to endure protracted dry spells. The two aforementioned elements help to guarantee drought resistance and a 30% reduction in the amount of water needed for irrigation.

Advantages

- It increases immunity power in plants thereby confers resistance against pest and diseases.
- It produces various beneficial metabolites produced by microorganisms such as organic acids, hydrogen peroxide and antibiotics, which are effective against various pathogenic microorganisms.
- It controls leaf hopper and white fly in okra.
- It improves fertility status in soils by increasing macronutrients, micronutrients and beneficial microorganisms thus increase soil health.
- It improves water holding capacity of soils because it acts as organic manure. Increases nutrient uptake in plants and enhances plant growth.
- It acts as a growth-promoter for small and marginal vegetable growers.
- Yield enhancement by 18% and in few cases like Cucumber, the yield is doubled, extended shelf life with strong flavour.

Generally, panchagavya is recommended for all the crops as foliar spray at 30% level (30 litre panchagavya in 100 litres of water).

Disadvantages

- Lack of awareness about its uses.
- Sometimes during fermentation contamination occurs.
- Slow in action.
- Limited availability of its products in markets.
- It encourages weed growth as it is non-selective.
- Less utilization by farmers.

CONCLUSION

Panchgavya helps in the production of synthetic pesticide-free food. It also maintains and restores crop production levels when the field changes from inorganic to organic farming practices within a year. It enhances the shelf-life, taste of fruits, grains, and vegetables and yields better and safe quality food products.

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