



Panchagavya - An Effective Activator of Plant and Soil

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Panchagavya is an organic product made from five distinct cow by products, including cow dung, urine, milk, ghee, curd, and other components. It has the ability to promote development and provide immunity in plant systems, conferring resistance against pests and diseases. Panchagavya contains a variety of nutrients, including macronutrients such as N, P, and K, as well as micronutrients necessary for plant growth and development. It also contains amino acids, vitamins, growth regulators such as Auxins and Gibberellins, and beneficial microorganisms such as pseudomonas, azotobacter, and phosphor bacteria.

Organic agriculture is a complete production management method that supports and improves agro-ecosystem health, including biodiversity, soil biological activity, and biological cycles. It emphasises the use of management strategies, notably the utilisation of off-farm inputs, while keeping in mind that regional conditions necessitate regionally customised solutions. Panchagavya, a specific preparation created from five by-products of cow together with other components, has the ability to promote development and immunity in plant systems. Panchagavya is very important in organic farming. Panchagavya is made using the following ingredients: 10 kilogramme fresh cow manure 10 litres of cow urine 2 litres cow milk 2 lighted cow curd 1 kilogramme cow ghee 3 litres tender coconut water 3 lit sugarcane juice Ripe banana - 12 digits Yeast (100 gramme) Sugarcane juice and coconut water are utilised to speed up the fermentation process, which also helps to reduce undesirable odours.

Protocol for Panchagavya Preparation

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

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Incubate for 2 days

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

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

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Add Sugarcane juice (3 lit)

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Add Cow milk (2 lit)

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Add Cow curd (2 lit)

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Add coconut water (3lit)

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Add yeast 100 gram and 12 ripened bananas

The entire combination should be incubated for two weeks before being filtered through a double-layered muslin cloth and kept in a container in the refrigerator to be used as needed.

Dosage of *Panchagavya* recommended for field application Spray system

A 3% solution is effective. All crops can benefit from 3 litres of *Panchagavya* combined with every 100 gallons of water. Flow system: *Panchagavya* solution can be blended with irrigation water at a rate of 48-52 litres per acre, either by drip irrigation or flow irrigation. Seed/seedling treatment: Before planting, soak the seeds or dip the seedlings in a 3 percent solution of *Panchagavya*. It is possible to soak the seeds or immerse the seedlings for 30 minutes.

General schedule of application of *Panchagavya*

- At Pre flowering phase: Once in 15 days
- At Flowering and pod setting stage: Once in 8-10 days
- At Fruit/Pod maturation stage: Once during fruit/pod maturation

Properties of *Panchagavya*

Panchagavya contains a variety of nutrients, including macronutrients such as nitrogen, phosphorus, and potassium, as well as micronutrients necessary for plant growth and development. It also contains amino acids, vitamins, growth regulators such as Auxins and Gibberellins, and beneficial microorganisms such as pseudomonas, azotobacter, and phosphorus bacteria.

Beneficial Effects of *Panchagavya*

Panchagavya is a crop production component that plays an important role in all aspects of crop management, including integrated soil fertility management, integrated pest control, and integrated disease management.

Effect of *panchagavya* on plants

- Plants sprayed with *Panchagavya* habitually produce bigger leaves and develop denser canopy.
- Branching is relatively high.
- The rooting is prolific and intense.
- The roots spread and grow into deeper layers were also observed.

Effect of *panchagavya* on soil fertility

- *Panchagavya* 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 a organic manure.
- It encourages growth and reproduction of beneficial soil microorganisms
- It increases nutrient uptake in plants and enhances plant growth.

Effect of *panchagavya* on pest and diseases

- It increases immunity power in plants thereby confers resistance against pest and diseases
- Various beneficial metabolites produced by microorganisms such as organic acids, hydrogen peroxide and antibiotics, which are effective against various pathogenic microorganisms

General Advantages of *Panchagavya*

- It improves soil health and fertility
- It is used against pest and diseases
- It increases yield and quality of produce
- No chemicals are used

- Eco-friendly approach
- Cost required for preparation is less
- No special techniques are required
- It gives multiple uses
- Reduces cost of cultivation by reducing chemicals like fertilizers, pesticides, fungicides, growth regulators etc
- Farmer friendly method

Problems, Constraints, Barriers and Difficulties in Adopting *Panchagavya*

- Lack of awareness about its uses
- Sometimes during fermentation contamination occurs
- Slow action Limited availability of its products in markets
- It encourages weed growth also as it is non-selective
- Less utilisation by farmers It may reduce quality of the produce sometimes

Conclusion

In addition to protecting nature, the growing concern for environmental safety and global demand for pesticide residue-free food has sparked a significant interest in crop production using eco-friendly products that are easily biodegradable and do not leave any detrimental toxic residues. As a result, it is crucial to employ natural products such as *Panchagavya* to create chemical residue-free food crops, and *Panchagavya* may therefore play an important role in organic farming.