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ORGANIC FARMING – Preparation of Panchagavya

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Abstract

Panchagavya is an organic product produced by using five different by-products of cow like cow dung, cow urine, cow milk, cow ghee, cow curd and other ingredients. It has the potential to play the role of promoting growth and providing immunity in plant system thereby confers resistance against pest and diseases. Panchagavya contains several nutrients i.e. macronutrients like N, P, K and micronutrients which are required for the growth and development of plants and also contains various amino acids, vitamins, growth regulators like Auxins, Gibberellins and also beneficial micro organisms like pseudomonas, azotobacter and phosphor bacteria etc.

Introduction

Organic agriculture is a comprehensive production management system which promotes and enhances health of agro-ecosystem, including bio-diversity, soil biological activity and biological cycles. It gives importance to the use of management practices particularly the use of off-farm inputs, taking into account that regional conditions require locally adapted systems. Panchagavya is a special preparation made from five by-products of cow along with certain other ingredients, has the potential to play the role of promoting growth and providing immunity in plant system. Panchagavya plays a major role in organic farming.

Ingredients used for preparation of panchagavya are,

Fresh cow dung- 10 kg

Cow urine- 10 lit

Cow milk- 2 lit

Cow curd- 2 lit

Cow ghee - 1 kg

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Tender coconut water- 3 lit

Sugarcane juice- 3 lit

Ripened banana- 12 numbers

Grape juice - 2 lit

Sugarcane juice and coconut water are used to accelerate the fermentation which also help in minimizing the bad odour.

Importance

- Panchagavya is known to contain millions of microbes and adds life to soil thus considered to be effective organic manure.
- It is flower inducer and provides rich and attractive colors to crops, above all its proper use can increase production and reintroduce/increase beneficial bacteria into the most important part of 'The Soil'

Preparation of panchagavya

- Panchagavya has to be prepared in a wide mouth container made of mud, concrete or plastic. The container should not be made of any metal.
- The first step is to mix fresh cow dung and ghee in the container. Mix it twice a day.
- On the fourth or fifth day the remaining ingredients cow milk, cow curd and cow urine should be added to the container and kept for 7 to 8 days more.
- The ingredients in the container should be well mixed by stirring for 20 to 30 minutes.
- This stirring should be carried out both in the morning and evening to facilitate aerobic microbial activity.
- Then add tender cocunut,jaggey and grape juice .
- Then add banana by making banana paste.
- After 10 days the panchagavya should be prepared and used as a foliar spray for plants or crops.

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DOSAGE OF PANCHAGAVYA RECOMMENDED FOR FIELD APPLICATION

- **SPRAY SYSTEM** -3% solution is effective.3% of panchagavya mixed with every 100 litres of water is suitable for all crops.

- **FLOW SYSTEM** -the solution of panchagavya can be mixed with irrigation water at 48-58 litres per hectare either through drip irrigation or flow irrigation.

- **SEED/SEEDLING TREATMENT** -3% solution of panchagavya can be used to soak the seeds or dip the seedlings before planting.soaking the seeds or dipping the seedlings for 30 minutes is feasible.

GENERAL SCHEDULE OF APPLICATION OF PANCHAGAVYA

- **AT PRE-FLOWERING STAGE-**
  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.

IMPACTS OF PANCHAGAVYA ON DIFFERENT PLANT PARTS

The effect of Panchagavya on different plant parts are as follows:

Leafs: Plants sprayed with Panchagavya produce bigger leaves; it also enhances the photosynthesis process.

Stem: It improves branching, and helps in producing more off shoots, which are sturdier.

Roots: Roots grow deeper, increasing the intake of nutrients and water. They also become denser and remain fresh for a longer time.

Yield: It has been usually observed that when farms are converted from inorganic to organic, their yield reduces; Panchagavya ensures that the yield is restored after the conversion.

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Panchagavya also enhances the shelf life, aroma and taste of the produce.

Reduction in water consumption- panchagavya causes a thin layer of oil to form on the leaves and stems. This reduces water loss due to evaporation during the day. Also as Panchagavya cause the roots to grow longer, plants can withstand longer periods of dry. This way water consumption of the plant reduces by 30%.

USAGE

1. As fertilizer and pesticide.
2. As plant growth regulator, promoter and immunity enhancer.
3. Cow urine, is practiced in Ayurveda, curing several diseases, including certain type of cancer.
4. In animals it stimulates the production of antibodies.

BENEFICIAL EFFECTS OF PANCHAGAVYA ON COMMERCIAL CROPS

MANGO

- Induces dense flowering with more female flowers.
- continues fruit regularly.
- Flavour and aroma extraordinary.

ACID LIME

- Continuous flowering is ensured round the year.
- Fruits are plummy with strong aroma.
- Shelf life is extended by 10 days.

TURMERIC

- Enhances the yield by 22%.
- Extra long fingers.
- Helps in survival of dragonfly, spider extra which in turn reduce pest and disease load.
- Enriches the curcumin content.

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VEGETABLES

- Yield enhancement by 18% and in few cases like cucumber, the yield is double.
- Wholesome vegetables with shiny and appealing skin.
- Extended shelf life.
- Very tasty with strong flavour.

BENEFICIAL EFFECTS OF PANCHAGAVYA ON SOIL FERTILITY

- Panchagavya improves fertility status in soils by incresing macronutrients, micronutrients and beneficial microorganisms thus increase soil health.
- It improves water hold 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.

BENEFICIAL EFFECTS 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 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.
- Reduces cost of cultivation by reducing chemicals like fertilizers,pesticides,fungicides, growth regulators etc.

PROBLEMS IN ADOPTING PANCHAGAVYA

- Lack of awareness about its uses.

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- Sometimes during fermentation contaminations occur.
- Slow action.
- Limited availability of its products in market.
- It encourages weed growth also as it is non selective.
- Less utilization by farmers.
- It may reduce quality of the produce.

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.