

# **Study of Traditional Organic Preparation Beejamrita for Seed Treatment**

**Burra Shyamsunder<sup>1</sup>, Dr Sandeep menon<sup>2</sup>**

Department of Agronomy, School of Agriculture, Lovely Professional University, Jalandhar,  
Punjab, India, 144411

## **Abstract**

Increasing population today emerges the various kinds of pollution like land, water and environment which ultimately decrease the productivity of the crops. With the continuous use of chemicals in the land for the higher crop production pollution of land and water arises which ultimately concern with the health of the population. Organic production is most important technique to grow a healthy production and to form a sustainable food security.

Keywords:- productivity,production,sustainable.pollution,population.

## **1.Introduction**

Crop production with organic techniques and methods will reduce the entrance of heavy metals in the plants as well as humans and improves the quality of the produce to facilitate better health of the population. Use of chemicals in crop lands creates the problem of heavy metal contaminated food stuff which can leads to the cancerous diseases. The cost of these chemicals is paid by endangering the health of population. Excess use of these chemicals degraded the land as well as leads to poor quality food production which ultimately affects human health. To cope with this problem, various techniques and methods are prepared to increase the quality of the food stuff to be consumes by the animal and human population.

## **2.Indigenous Technical Knowledge (ITK)**

Indigenous technological knowledge is the real knowledge of a specific community or farmers that represents tradition-based experiences and more recent experiences with modern technology. (Haverkort, 1995). It is a recent experience of people or farmers towards any field or farm which indicates its development in different way as compare to modern techniques. It is 100% natural or effective technique which neither harms anyone nor decreases the productivity of the agricultural produce. Indigenous agricultural practices are the practices implemented with the ancient knowledge of the people. Indigenous Technical Knowledge is the local knowledge that is unique to a given culture or society. This contrasts with the international system of information created by academia, research institutions and private firms. It is kept in as many classes, communities and societies as are accessible today in various minds, languages and abilities (Atte, 1989). It is the knowledge of doing agricultural practices in local way to increase the poroductivity. Thus Indegenioius Technical Knowledge (ITK) reduce dependence on external

inputs, to reduce the cost of cultivation and to propagate eco-friendly agriculture (Sundramari and Ranganathan, 2003).

### **3.Zero Budget Natural Farming (ZBNF)**

Zero Budget Natural Farming (ZBNF) is one of the most important techniques which can stimulate better production both in terms of quality and quantity. It is best technique to facilitate good quality yield and reducing the pollution of land and water. Organic farming totally excludes the use of chemicals in the fields and involves the use of plants and animal wastes for fertilizers for the higher crop production. Organic farming is a technique to stimulate the better crop production with the motive to improve the quality of the food products to maintain the health of the population of man and animals. Organic farming is practiced mostly in south India, especially in Karnataka state from where it is first arise. Now it is practiced in almost all parts within the country. Sikkim is 1<sup>st</sup> totally organic developed state in world. More than 76000 ha of land area is cultivated organically in Sikkim. Small scale farming is most concern to develop into organic. It takes minimum more than 3 years to convert a land from inorganic to organic. Inorganic production greatly affects the health of the population. Indian farmers do not have enough land holdings or money to fulfill the rate of chemical fertilizers or other chemicals for better production. On the other hand, the use of chemical resources for the cultivation of crops is costly and may greatly affect the health of the man and animals. So it is important to improve our food stuff by excluding the use of those chemicals in the cultivation. The excessive use of chemicals in the cultivation leads to the accumulation of heavy metal ions in the food products which may leads to the cancerous diseases in the population of man and animals. So, in order to minimise the accumulation and fate of heavy metals and other chemicals in foodstuffs, agricultural formulations are made organically. With the aid of agricultural byproducts like bran, oil cakes, FYM, etc., these formulations are prepared to enhance better growth and production. (Devakumar et al. 2011).The Karnataka State movement was born out of a partnership between Mr. Subhash Palekar, who put together the activities of the ZBNF, and therefore the Karnataka Rajya Raitha Sangha State Farmers Association (KRRS), a member of los angeles Via Campesina (LVC).A number of KRRS members also members of the ZBNF movement, which may be a larger group and includes many other farmers.The four pillars of ZBNF:- 1.Jivamrita/jeevamrutha: is a fermented microbial culture. 2.Bijamrita is effective in protecting young roots from fungus also as from soil-borne and seedborne diseases that commonly affect plants after the monsoon period. 3.Acchadana – Mulching: consistent with Palekar, there are three sorts of mulching: It promotes aeration and water retention in the soil. 4. Whapasa – moisture: According to Palekar, what roots need is water vapour. Beejamrita is organic liquid manure which is used for seed treatment for different crops. It is an effective organic preparation which protects the seed from various fungal and bacterial diseases. Bijamrita / Beejamrutha is a treatment for plants, seedlings or any planting material before sowing. it's effective in protecting young roots from fungus along side soil-borne and seedborne diseases which regularly affect crops after the monsoon period.It is a preparation of organic agriculture and serves as the 2<sup>nd</sup> pillar of Zero Budgeting Natural farming. It is prepared by process of fermentation of ingredients available at agricultural farm itself. These organic preparations are rich sources of beneficial micro flora which support, stimulate the plant

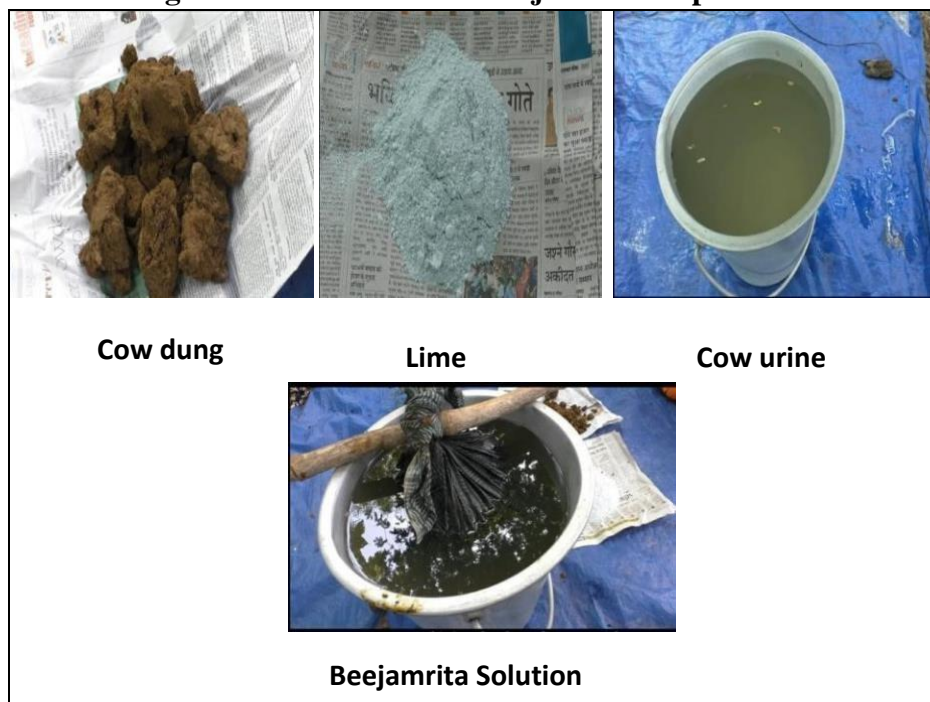
growth, help in recuperating vegetative growth and also good quality yield (Deva kumar et al.,2014). Higher microbial activity is observed in 10-12 days after beejamrita production. Different bacteria, fungi, nitrogen fixers participate in the preparation of beejamrita for better seed protection. Beejamrita is rich in various soil microorganisms which help in seed protection from different insects and pests. Beejamrita is ready for use after its preparation. It has been observed that beejamrita shows good results when is used on the day of preparation. The higher activities of bacterial population in beejamrita solution facilitate the production of other important microorganisms which helps in promoting the seed protection capacity. Various bacteria, fungi, actinomycetes are produced to facilitate the protection and increasing the production. Beejamrita also provides micronutrients and growth promoters required for the seed germination and better yield production. Beejamrita is a liquid formation used for seed treatment from locally available resources like agricultural farm resources. It protects the crop from harmful soil borne and seed borne pathogens during the initial stages of germination and establishment. Different beneficial microorganism's viz., nitrogen fixers, phosphorus solubilizers, actinomycetes and fungi are present in beejamrita solution (Devakumar et al., 2008) and Srinivas et al., (2010). It is traditional knowledge in India to use beejamrita. It was shown in earlier experiments that organic manures carry essential nutrients that cause increased crop growth and yield (Naikwade 2017). There are very few references to the scientific study of the effect of local cow urine, cow dung, and beejamrita on the germination of important legume crops. Beejamrita is organic preparation used to treat the seeds for protecting them from various soil borne diseases and to facilitate rooting and growth. beejamrita Indicates the nutrient composition of different solid and liquid organic preparations helpful for better plant establishment and further growth. Shows that altogether these preparations, the essential ingredients are cow based products. Devakumar, N., et al. (2014): Observes the higher colony forming units (CFU) on the day of preparation of beejamrita between 9th to 12th days after preparation (DAP). Higher number of bacteria, different fungi and N-fixers clearly indicate that the beejamrita is enriched consortia of native soil microorganisms. it had been found that, beejamrita would give best result if it's used on the day of preparation. The microbial studies revealed that higher bacterial population was recorded followed by N-fixers, Psolubilizers, fungi and actinomycetes.. Ghosh, P. K., & Sahoo, B. (2011): Indicates Indigenous Traditional Knowledge (ITK) is an integral part of the culture and history of a local community. It is the unique, traditional, local knowledge existing within and developed around specific condition of men and women indigenous to a particular geographical area. Vyankatrao, N. P. (2019): Effect of Bijamrita and alternative organic liquid treatments on seed germination and phanerogam growth of legume crops. Bijamrita and other organic liquid treatments on seed germination and seedling growth of legume crops. Bijamrita and other organic treatments were easy to prepare made from locally available ingredients were useful to increase seed germination percentage of all four legume crops. when compared completely different concentrations of bijamrita, 100% beejamrita showed germination proportion, spermatophyte growth and seed vigour index.

#### **4.MATERIALS AND METHODS**

It is composed of local agricultural ingredients as cow dung, cow urine, lime, soil and water. The preparation of Beejamrita is done at 20 liters of water, 5 kg of local cow dung, 5 liters of local

cow urine and 50 gram lime & handful soil from the bund of farm or from shady area is to be taken for its preparation.

**Fig: 1. Material Used for Beejamrita Preparation**



### **5.Preparation Method:**

Take 5 kg local cow dung and put it in a cloth then bond it by tape. Hang this with in the 20 liter water up to 12 hours. Finally add 5 liter desi cow urine or human urine in that solution & add the limewater and stir it well.

**6.NUTRIENT COMPOSITION:** Organic liquid preparations are rich in both macro and micronutrients. Beejamrita solution contains primary as well as secondary nutrients which provide protection to the plant from various seed borne diseases and helps in better plant establishment. The composition of BEEJAMRITA is shown in the given table:

**Table: 1- Nutrient composition of Beejamrita and their composition.**

S.N.	Parameter	Composition
1	pH	7.07
2	Soluble salts (EC)	3.40 dS <sup>-m</sup>
3	Total N	770ppm
4	Total P	166ppm
5	Total K	126ppm
6	Total Zn	4.29ppm
7	Total Cu	1.58ppm
8	Total Fe	282ppm

9	Total Mn	10.7ppm
---	----------	---------

**7.For seeds:** Collect seeds to be treated in a cotton cloth. Stir the solution once again clockwise before using for seed treatment. Dip the bundle of seeds in Beejamrita solution and place there upto it gets completely soak in solution. After that remove the bundle of seeds and dry in shady area. Avoid direct sunlight and rainfall over it. (OR) Add bijamrita to the seeds of any crop as a seed treatment: coat them, combine or mix them by hands; dry well and use for sowing.

**Fig.2: Seed Treatment**



**8.For roots:** Dip the plant roots in Beejamrita solution for 2-3 minutes and after that u can use it for sowing.

## 9.ADVANTAGES

Acts as anti-bacterial, anti-fungal and anti-viral for diseases. It is such one organic product which is helpful in plant growth. It plays important role to promote germination. Complete Seed Rejuvenator. Roots Protector. It can add strength to nursery plants during transplantation. Gives high strength to the seeds and during seedling stages. Beneficial microorganisms present in it are usually protects the crop from seed borne and soil borne pathogens. Baby plant fertilizer, pesticide and manure. Gives excellent strength during Germination stage. Extraordinary strength for baby saplings to form as individual plant. Exceptional seed and baby crop protector.

## 10.DISADVANTAGES

No such disadvantages because is organic in nature. Organic formulations do not have disadvantages on soil as well as crops. Beejamrita is organic formulations and it does not have such disadvantages but some precautions are there while using for seed treatment. Some precautions have to take while using the beejamrita solution.

**11.PRECAUTIONS:** While preparation use fresh dung only. Use old urine, and don't use urine in high amounts. Don't use an excessive amount of lime powder (use up to required level). Make sure allow it to dissolve it overnight i.e. 12hours. Only sprinkle and mix gently.

**12.conclusion:** By the increase of population in recent times we have to protect the environment from chemicals and hazardous polluting products, and maintain the ecological balance, sustainability, & recycling of natural resources for future generations.

## REFERENCES

- Devakumar, N., Shubha, S., Gowder, S. B., & Rao, G. G. E. (2014). Microbial analytical Studies of traditional organic preparations beejamrutha and jeevamrutha. Building organic Bridges, 2, 639-642.
- Ghosh, P. K., & Sahoo, B. (2011). Indigenous traditional knowledge. Orissa review, 67(6), 66-71.
- Naikwade, M., Liu, F., Wen, S., Cai, Y., & Navik, R. (2017). Combined use of cationization And mercerization as pretreatment for the deep dyeing of ramie fibre. Fibers and Polymers, 18(9), 1734-1740.
- Pathak, R. K., and R. A. Ram. "Bio-enhancers: A potential tool to improve soil fertility, Plant health in organic production of horticultural crops." Progressive Horticulture 45.2 (2013): 237-254.
- Sundramari and Ranganathan, 2003. Indigenous Technical Knowledge (ITK) and Ecofriendly agriculture.
- Vyankatrao, N. P. Effect of Bijamrita and other organic liquid treatments on seed Germination and seedling growth of legume crops.