

Pesticide Science and Pest Control

Research Article

Effect of Jeevaamrutham on Seeds of *Lablab Purpureus* (L.) Sweet [Mochai Kottai]

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Abstract

A plant disease affecting most of the legumes Tobacco Necrotic Virus (TNV) depicts abnormal colouring or necrotic tissue in the leaves being the primary symptoms. Currently only chemical control of the virus is possible. The 'ABC' of TNV is (A) refers to dark brown raised patches, (B) dark sunken lesions (C) light brown cracked patches.

One gram of Jeevaamrutham contains more than 700 million microorganisms hence it is a plant tonic made with an acidic pH. The ingredients being 1kg cows dung, 1 litre cows urine, 200 g jaggery, 200g gram flour and 100 g soil from the field Serial dilutions of the Tonic ranging from 1, 10, 20 µl were applied to the host plant *Lablab purpureus* [Mochai kottai]. The promising levels being 10 µl. formulation as a mixture used to soak the seeds.

Furthermore it can be used as a natural liquid fertilizer it offers several benefits, including improved soil health, enhanced nutrient availability, and increased crop yields. It's a cost-effective and eco-friendly alternative to chemical fertilizers, promoting sustainable agriculture.

Keywords: Antiviral, Mochai, Plant Tonic, Chemical Spray, Jeevaamrutham

Introduction

Medicinal plants are applied in the treatment of various plant diseases in India. The concepts of organic agriculture were developed in the early 1900s by Sir Albert Howard, F.H. King and Rudolf Steiner who believed that the use of animal manures (often made into compost), covercrops, crop rotation, and biologically based pest controls resulted in a better farming system.

Howard, having worked in India as an agricultural researcher, gained much inspiration from the traditional and sustainable farming practices he encountered there and advocated for their adoption in the West [1].

Jeevamrutham, a key component of Zero Budget Natural Farming (ZBNF), is a organic manure which is used to soak the seeds that can significantly improve soil fertility and crop productivity. Research indicates it acts as a cost-effective and eco-friendly bio-inoculant, enhancing soil microbial activity and nutrient availability. Studies have explored its

impact on various crops, demonstrating its potential as an alternative to chemical fertilizers. [2-4]

The results demonstrated that Jeevamrutham, At a concentration of 100µl showed promising effects, comparable to the commonly used Bordeaux mixture 10%. Furthermore, the organic formulation exhibited potential as a soil restorative agent, offering a sustainable alternative to chemical fertilizers. These findings highlight the importance of exploring organic solutions in agriculture and point towards the potential of organic fertilizer in improving tea plant health and yield while reducing the reliance on chemical controls [5].

Materials and Method

The experiment was conducted at the Guru Nanak College Campus. Seeds of *Lablab purpureus* were sourced from a certified organic farm and sown in test tubes borosil.

The experiment was conducted in a two treatments. Control (C): Plants grown without Jeevamrutham application. Treatment (T): Plants grown with regular applications of Jeevamrutham.

The experiment was carried out over a period of 2 days, to control the lesions.

Jeevamrutham preparation and application

S.No.	Ingredient Name	Quantity
1	Cow dung	1 kilogram
2	Cow urine	1 Litre
3	Jaggery	200 grams
4	Gram flour	200 grams
5	Water	100Litres

The mixture was stirred thoroughly and allowed to ferment for 7 days. Once ready, Jeevamrutham was diluted at a ratio of 1:10 with water and allowed the seeds to be soaked into the mixture.



Figure 1: Seeds Soaked in Jeevamrutham Tonic

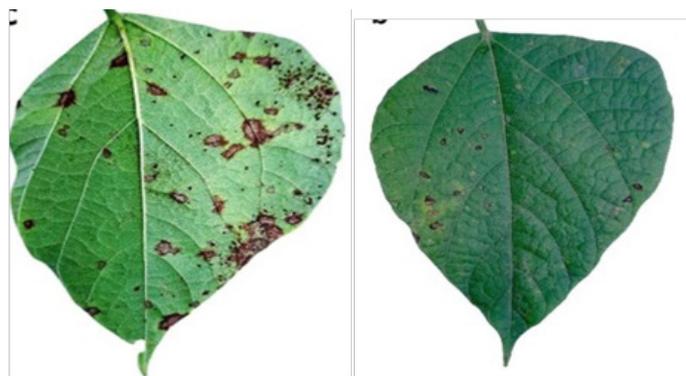


Figure 2: Seeds After Soaked in Jeevamrutham Tonic Showed No Lesions on Leaf

Experimental Plant

Mochai Kottai, also known as Hyacinth Bean or Field Bean,

is a popular legume in South India, particularly in Tamil Nadu. The plant is a fast-growing creeper that produces abundant flowers and pods. Rich in protein. And a Good source of iron and fiber eventually low in fat, cholesterol, and sodium.

The plant is an annual or short-lived perennial vine, stems can reach (20 ft) in length. The leaves are made up of three pointed leaflets, hairy on the undersides. The inflorescence is racemose with white to purple flowers.

Lablab can grow on a wide range of soils, from sand to clay, within a pH range of 4.5 to 7.5. It is known to grow better in acidic conditions than most legumes, but does not grow well in poorly drained soils or in saline conditions and annual rainfall of 700-3000 mm allow lablab cultivation. Lablab requires well-drained soils as it is very intolerant of waterlogged or flooded conditions.

Due to its symbiosis with nitrogen-fixing rhizobium bacteria, lablab bean has low soil fertility requirements and can be an important part of an agricultural system that improves soil nitrogen availability. The rate of nitrogen fixation has been shown to be highest when combined with phosphorus fertilisation, as phosphorus is required for rhizobium attachment to roots. Its cultivation also increases potassium and phosphorus availability [6,7]. These soil-improving properties make lablab attractive for intercropping, mixed cropping systems and as a green manure. For example, intercropping lablab maize can improve multiple soil functions, including microbial diversity, with minimal to no loss of maize yield [8,9].

Results and Discussion

The formulation was studied at time intervals of 24hours and,48hours showed effective results. The results are shown in Table 1. The data obtained confirmed the manurial potential which could restore the fertility of the soil deteriorated by chemical fertilizers.

The study demonstrated that Jeevamrutham, a traditional organic fertilizer, can significantly improve the soil nutrient content, water quality, and plant growth. These results suggest that Jeevamrutham is an effective organic fertilizer that can be employed in sustainable agriculture.

Serial Number	Name of the Disease	Concentration of the Jeevamrutham µL	Time Interval Hours	Efficacy%
1	Necrotic Lesions	1	24	85
		10	24	90
		20	24	100
		1	48	65
		10	48	80
		20	48	100

Table 1: Efficacy of Formulation on Lab Lab Bean Plant

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