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Gunapaselam, on Tobacco Necrotic Virus (TNV) Affecting Cyamopsis Tetragonaloba Taub

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Abstract

Tobacco Necrotic Virus (TNV) is a plant disease affecting most of the legumes and other vegetable crops. The primary symptom being abnormal coloring or necrotic tissue in the leaves. Currently only chemical control of the virus is possible. There are, however, cultural management options to reduce the risk of the virus. The 'ABC' of TNV is (A) refers to dark brown raised patches, (B) dark sunken lesions (C) light brown cracked patches. Gunapaselam is a plant tonic made with fish extracts along with jaggery .Serial dilutions of the Fish Tonic ranging from1,10,100 to 1000µl were applied to the host plant *Cyamopsis tetragonoloba* (Cluster Bean).The promising levels being 100 µl.Gunapaselam was applied as a liquid foliar spray.

Key Words: Antiviral, Cluster bean, Cyamopsis, Fish Tonic, Gunapaselam.

INTRODUCTION

Organic farming is an agricultural system that uses fertilizers of organic origin such as compost manure, green manure (neem kernel) .Medicinal plants have been the basis of treatment of various plant diseases in Indian. 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), cover crops, 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 (Ramesh *et al*., 2005).

Cyamopsistetragonoloba ,guar is affected by this Tobacco Necrotic Virus (TNV) through out the year and can be only controlled by chemical agents which is not prescribed as it is an commonly used legume a treat in all Indian dishes.(Fraenkel-Conrat, H,1988).The characteristic feature of TNV is that it has a high level of resistance to heat and some chemical agents as well as to degradation due to aging. TNV is also unusual in that it can be spread via a fungus (Olpidiumbrassicae).(Rice,1938)

Most of the potent medicinal plants have relatively no toxic or adverse effects when used by humans, to control some phytopathogens This calls for caution in the use of medicinal plants of which the use is presently on the increase due to easy availability, affordability, accessibility, and promising efficacy comparable to other sources from Fishes.

Gunapaselam a potent formulation prepared from fish waste and fermented with molasses or sugarcane waste was evaluated.

MATERIALS AND METHOD

Preparation of Gunapaselam

The fish and fish waste are chopped into fine pieces. This is filled in a container made of mud-pot or a plastic- bucket or a glass- jar but a metal container should not to be used. In this container the same quantity of fish, jaggery or molasses are added. For 1 kg fish, 1 kg jaggery. The mouth of the container was tied with the piece of jute or cotton cloth to prevent the entry of flies and the container was placed in dark for four days on the 5th day and during the next 10 days, it is stirred twice a day, till the smell changes from bad to sweet. When the smell disappears, the solution is ready for use. The solution is decanted and the filtrate is stored in a glass jar or another container with cover airtight. The extract will remain in good condition for 6 months. (Figure 2and 3)

Figure 2: Ingredients of Gunapaselam

Figure 3: Methodology In Preparation of Gunapaselam

Extract Preparation

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Gunapaselam was stirred with the solvent water, 2:1 v/v and applied as a Foliar spray. Various concentrations such as 1.10,100, 1000 µg/L with the stock solution.

Experimental Plant *Cyamopsis Tetragonoloba*

Leguminous plant valuable in a crop rotation cycle, as it lives in symbiosis with nitrogen-fixing bacteria, commonly called as Guar applied as a gelling agent (guar gum) in its seeds utilised inan hydraulic fracturing -oil shale gas, about 80% of world production occurs in India. Cyamopsis tetragonoloba grows upright, reaching a maximum height of up to 2–3 m. A main stem with fine branching, rootsdevelop nodules with nitrogen-fixing soil bacteria, leaves hairy, elongated oval shape alternate phyllotaxy. Clusters of flowers grow in the plant axil and are white to bluish in color. The pods are flat and slim containing 5 to 12 small oval seeds, mature seeds are white or gray, but with excess moisture they can turn black and lose germination capacity. (Figure 1)

Figure 1: Cluster Bean Plant with Fruits

Results And Discussion

The Foliar spray of Gunapaselam or fish molasses at time intervals of 24hours and,48hoursshowed effective results. The results are shown in Table-1.

Gunapaselam is an excellent plant tonic. It assists in plant growth providing nitrogen and it is proven to be effective, both as a natural growth promoter as well as a pest repellent. Can be applied as spray during dawn or dusk on any crop, for promoting growth, flowering and yield increase. (ThendralHepsibha B and A. Geetha,2014 ;2017).

The data obtained confirmed the manurial potential of Gunapaselam which could restore the fertility of the soil deteriorated by chemical fertilizers.

TABLE1: EFFICACY OF GUNAPASELAM ON NECROTIC LESIONS

Serial Number	Name of the Disease	Concentration of the Spray (Gunapaselam) µl	Time Interval Hours	Efficacy%
1	Necrotic Lesions	1	24	85
		10	24	90
		100	24	100
		1000	24	100
		1	48	65
		10	48	80
		100	48	100
		1000	48	100

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