HOMOEOPATHIC MANAGEMENT OF BACTERIAL BLOTCH IN WHITE BUTTON MUSHROOM CAUSED BY *PSEUDOMONAS TOLAASII*

1. INTRODUCTION

The use of homoeopathic medicines in different fields of human utility is the prime motivation to conduct such a project, where homoeopathic medicines such as Belladona , Silicea and Aconite 30 was used to prevent a common disease in Mushroom, i.e) Blotch caused by *Pseudomonas tolasii*. Utilization of homoeopathic medicine in food production, not only influence biological process of plants to accelerate growth, overcome infectious plant diseases and thereby directly promoting increased production. Application of homoeopathy in food production /Single Cell Protein production can also reverse the damage which is already present in the environment (1).

1.1. Chemicals encourage mushroom diseases:

Many chemical fertilizers are composed of acids like sulphuric acid and hydrochloric acid and these acids decrease the soil's quality and heighten the acidity which further registers a bad impact on the mushroom growth. The natural nitrogen fixing bacteria, rhizobium suffers great blows from the excessive usage of chemical fertilizers.

1.2. Homoeopathic medicines and mushroom growth:

Homoeopathic medicines can assist in controlling bacterial blotch and diseases by use of same disease of the mushroom, the mushroom damaged by the *Pseudomonas tolaasii*.[(7)] Utilizing homoeopathic medicines on mushrooms guarantees non toxicity because the mode of preparation assures that mushrooms will no way be contaminated. It will neither damage the organism, the soil, nor the mushrooms. It also has an enormous potential as it covers the majority of crops and enables crop abundance and better nutritive yield.

Another shining aspect of homoeopathic medicines is that, it acts as growth booster and also helps to overcome general mushroom diseases. We never consider that the mushrooms may need additional help being able to absorb the nutrients already present. A properly selected homoeopathic remedy helps to increase the nutritional absorption of the mushrooms making them stronger and produce truly nutritious food. *Silicea, Aconite and Belladonna are* selected

since they act mainly on weak and puny mushrooms. When we decrease the use of "organically certified" pesticides, we will be reducing our local and global toxic impact.

2. NEED FOR THE STUDY

Chemical agriculture dominates traditional organic farming due to assured yield and reduced infection. But over a period of time, we started experiencing damaging effects of chemical applications. Triturated biochemical medicines are used to cure diseases caused due to bacteria and other epidemic diseases. Homoeopathic remedies stimulate immune system to fight disorders. This study has been done in order to prove the efficacy of homoeopathic treatment in increasing mushroom tolerance to epidemic diseases such as bacterial blotch caused by pseudomonas tolaasii which produce severe cultivation loss to the farmers, increasing immune system response thereby enhancing productivity of mushrooms which is free of epidemic diseases, so that we can obtain purest form of edible mushrooms.

It allows for lower use for pesticides without jeopardizing defense. This study has been done to develop a natural, simple and inexpensive method to increase agricultural production without using synthetic chemicals so that a wide range of health hazards ranging from short term impacts such as headache and nausea to chronic impacts like cancer can be avoided.

Researchers discovered that *Pseudomonas tolaasii* reproduces rapidly in humid conditions, the amount of bacteria doubles in less than an hour. *P. tolaasii* can cause serious losses if uncontrolled. However, proper hygiene and regulation of mushroom production management can control this pathogen. Prevention requires use of fungicides coming under EU pesticides and PAN pesticides, which is highly dangerous. Another option is biological control by using bacterial antagonists has been widely documented (Guillaumes et al., 1988; Healey and Harvey, 1989; Fermor et al., 1991) and at least one commercial biocontrol agent is available (Miller et al., 1995).

If homoeopathy can alternate these types of fungicidal agent, then it is an endless eternal flame to the homoeopathic fraternity as there is a great challenge of feeding growing population food and nutrition, mushroom is a ray of hope. In this plight mushroom provides much favor that it can be grown by even landless people, that too on waste material with proteins, minerals, vitamin B complex, iron, lysine, antioxidants and has low calories and completely lack cholesterol.

Furthermore it has high medicinal attributes like immunomodulatory, anti-viral, anti-tumor, antioxidant and hepato-protective properties. Mushrooms have been valued since early civilization for its delicacy and therapeutic value. Mushroom cultivation in India is of recent origin and in 1961 when ICAR founded a scheme on button mushroom cultivation technology

3. AIMS AND OBJECTIVE

- To know the efficacy of Homoeopathic medicines in providing resistance to button mushrooms against bacterial blotch disease.
- To know which of the 3 selected medicines is more efficient in providing resistance against Bacterial blotch disease.

3.1. SCOPE / ACCOMPANYING MERITS OF THE RESEARCH

- If the research outcome is proved successfully, we will be able to obtain purest form of edible white button mushrooms and can increase the mushroom productivity.
- Production of white button mushrooms with higher yield potential and better resistance to pest can be obtained.
- Since the method of application is safe and eco-friendly, a wide range of health hazards ranging from short term impacts such as headache and nausea to chronic impacts like cancer can be avoided.
- So that we can develop a natural, simple and inexpensive method to increase agricultural production without using synthetic chemicals, thereby increasing mushroom tolerance to epidemic diseases in the environment, increasing immune system response and thereby enhancing productivity of mushrooms, so that we can obtain purest form of edible white button mushrooms.

4. REVIEW OF LITERATURE

Mushrooms are unique when compared to humans and animals, it needs different approach. The science of homoeopathy has great potentials and could give a new direction that requires attention of the researches in alternative agriculture "As mushrooms too are made of cells which could get stressed and become diseased". Constructing a Materia Medica for plants is inevitable. Homoeopathic medicines has found recognition in healing human beings. Applied homoeopathic research in agriculture is also finding place.

- **Applying agriculture on homoeopathy, an article on homoeopathic journal.** This journal has opened a door to healthy horizons. In order to prevent the harmful effects of pesticide sprayed food, people today gave opted for organic foods or foods grown organically without being enhanced by artificially sprayed chemicals. This is important, due to the fact that the use of agrochemicals and especially pesticides is acutely toxic to humans. Pesticides cause poisonings and deaths every year other than chronic health effects of neurological effects, reproductive problems, interference with infant development, and cancer **Published in Homoeopathic journal: vol 3, issue :12, Oct,2010 (editorial)-from homeorizon.com by Dr.P.Singh MD.(HOM) India**.(8)
- According to the study conducted by **Dr.H.U.Gangar** [Ex head- Engineering and workshop Central Institute for Research in Cotton Technology I.C.A.R, Mumbai]. It is established that electrically neutral pure distilled water develops internal electrical charges as soon as few drops of homoeopathic medicines are added into it. Different drugs as well as different potencies (dilution) of same drug produce different electrical charges. Such medicated water containing drugs, in highest potency containing electrical charges influences the genetic processes of cotton plant in a big way. It can accumulate germination process, can shorten the cultivation period, can enhance the yield and quality of cotton crop and also makes it possible to grow it during off season. (9)

- A book called **HOMOEOPATHY TO CONTROL ANTS** by Christiane Maute, deals with the common plant disease, pest and damage with information on how to treat them with homoeopathic remedies. It also has useful illustration and brief note are supplied for most of the diseases, which enables even the novice to recognise the ailment at a glance and easily find right remedy. The dosage and treatment method are described in detail. The book is rounded off by short, clear materia medica giving information on each remedy. This information was **published in the second edition of the book in the year 2014. (10)**

- A book called **Homoeopathic Treatment of Plants by Vaikunthanath Das Kaviraj** is pioneering new book on homoeopathy for plant disease. This book focus on homoeopathic treatment of plants in case of malnourishment, parasitic and fungal attack, bacterial and viral disease, damage and weed infestation. The **4th revised edition of this book was published on 2015, ISBN; 978-3-941706-47-7. (11)**

- A Review on **Agriculture, pesticides, food security and food safety by Fernando P. Carvalho .**This study have shown the adaptation and resistance developed by pests to chemicals and every year higher amounts and new chemical compounds are used to protect crops, causing undesired side effects and raising the costs of food production. They also stated that Biological chemical-free agriculture is also gaining more and more support but it is still not able to respond to the need for producing massive amounts of food. This study was published in the journal **Environmental Science & Policy**, **Volume 9, Issues 7–8, November–December 2006, Pages 685–692.(12)**

- **A study on long-term manuring and fertilizer effects on depletion of soil organic carbon stocks under pearl millet-cluster bean-castor rotation in western India by C. H. Srinivasa rao** have conducted an 18-year old long-term field experiment involving pearl millet-cluster bean-castor sequence on an Entisol in western India to examine the effects of chemical fertilizers and manuring on carbon pools in relation to crop productivity and seed sequestration. This study proved that Conjunctive use of chemical fertilizers along with farm yard manure produced higher agronomic yields and reduced the rate of SOC depletion. This study was **published online: 6 DEC 2011, DOI:**

10.1002/ldr.1158 in the journal Land degradation and Development vol:25, Issue:2, page NO 173-183 March/April 2014.(13)

- A study on **Changes in Bacterial Community Structure of Agricultural Land Due to Long-Term Organic and Chemical Amendments by Vasvi Chaudhry et al.** The findings of this study supported the view of that organic compost amendment (OCL) activates diverse group of microorganisms as compared with conventionally used synthetic chemical fertilizers and showed that Functional diversity and evenness based on carbon source utilization pattern was significantly higher in organically cultivated land as compared to chemically cultivated land and fallow grass land, suggesting an improvement in soil quality. This study was published in the **journal Microbial Ecology August 2012, Volume64, Issue.2, pp 450-460, First online: 15 March 2012. (14)**

ABOUT MUSHROOMS

The mushrooms are fleshy macro fungi that are consumed for their nutritional value as well as good taste. There are numerous recipes prepared from edible mushrooms. Thus they are cultivated nearly in seventy countries. The mushrooms are affected by various diseases like bacterial blotch, green mould, die back disease, dry bubble disease and wet bubble disease. These diseases have major role in affecting growth of the mushrooms and thus the economy. The commonest Disease-causing pests are Mites, Mushroom flies, Mycophytic nematodes, phorid fly, sciarid fly. This study is undertaken to understand the effectiveness of homoeopathic medicines in giving resistance to diseases of mushroom. For this study Pseudomonas infection-Bacterial blotch disease in button white mushroom is taken.

Nowadays there is a craze for organic fruits and vegetables. Homoeopathy can be effectively in these conditions so that, healthy organic fruits and vegetables can be obtained. Agaricus bisporus is an edible mushroom whose native is grasslands in Europe and North America but it is found worldwide in grassy areas following a rain (from late spring to autumn) in presence of manure.

It has two color states while immature—white and brown—both of which have various names. When immature and white, this mushroom is known as common mushroom, button mushroom, white mushroom, cultivated mushroom, table mushroom,

and champignon mushroom. When immature and brown, this mushroom may be known variously as Swiss brown mushroom, Roman brown mushroom, Italian brown, Italian mushroom, cremini or crimini mushroom, baby bella, brown cap mushroom, or chestnut mushroom. When mature, it is known as Portobello mushroom, often shortened to just Portobello.

Homoeopathy not only cures humans but also plants and animals (the infected). Dr. Boeninghausen said that when he threw left over medicines in plant pots the 2 medicine had effects on them but he didn't do further research over it. As the substance, which has the ability to produce a morbid condition also has the ability to cure the particular condition. There are histories where Homoeopathic remedies have given excellent service in the field of agriculture. Homoeopathy can be efficiently used in agricultural science. Homoeopathic remedies are prescribed based on symptom similarity the most similar remedies for bacterial blotch condition are Aconitum napellus, Belladonna and Silicea.

Role of Silicea in Agro Homoeopathy

Which homeopathic remedy has the reputed power to:

- strengthen weak and spindly plants
- turn deserts into fertile fields, and
- convert water repelling soils into moisture loving ones?

No other remedy has the reputation for doing so much with so many plant and soil problems. Silica, known within homeopathy by its Latin name of Silicea, should have pride of place in everyone’s garden shed – once tried, no farmer or gardener wants to be without it. Let’s find out why.

How it Began

Homoeopathic silica has long been used for human and animal health problems but knowledge of its ability to treat plant and soil sicknesses is relatively new. In people (and animals) it is used for: lack of confidence, weakness, fatigue, delayed development, slow healing of wounds and infections, and failure to thrive.

When homoeopaths realised the same complaints seemed to exist in plant form they began to wonder if Silicea could have a wider use. Its important role for horticultural and agricultural problems was then discovered.

Silicea for Strong and Healthy Plants

Without the presence of chemical silica within their cells, plants would not be able to stand upright or even grow. It regulates all cellular processes, including reproduction, brings a healthy resilience to brittle growth, and adds strength and 'grit'.

When silica is missing from the soil, or when plants have trouble using it, homoeopathic silica makes a world of difference – puny plants with weak and straggly growth, or those prone to fungal attacks, frequently grow strong and vigorous within days of being sprayed.

Silicea as a Soil Tonic

Silica is difficult to add to soil as a nutrient or supplement, and is rarely missing from soil – but when it is, a spraying of homoeopathic silica improves plant health and helps it to absorb whatever silica is present.

As an added bonus, homeopathic silica assists soil to absorb and retain moisture (more on this later).

Silicea for Transplant and Other Shocks

Plants that are in shock stop growing, wilt in the sun, drop their leaves, and are at risk of dying. Plant shock mainly happens with transplantation but also with damage to the root ball or extreme changes in temperature. A single spray of Silicea, before or after transplant, helps to strengthen the plant and prevent exhaustion.

Silicea to Strengthen Plants against Pests and Diseases

Homoeopathic silica helps plants protect themselves against fungi, moulds, mildews, root sliminess, and some forms of rust. It also strengthens them against pests such as aphids, budworm, citrus mite and dried fruit beetle. One spray is all that is needed.

In his book, Homeopathy for Farm and Garden, Kaviraj recounts one instance of a sapling being affected by dieback that only had one quarter of loose and drying bark left around its trunk.

After being given one dose of Silicea the bark miraculously reattached to the cambium (the layer of cells lying between the wood and bark from which new bark and wood cells are produced), and after one week the top branches started to grow new shoots and leaves.

With dieback being such a problem in many countries of the world, this knowledge could be invaluable.

Silicea Stimulates Seed Germination

One single dose is usually sufficient to help generate the seeds of perennials and biannuals so that they lead healthy lives right from the moment of being sown.

The plants that sprout from the seeds are noted for growing strong roots along with firm shoots and leaves. They are also resistant to damping off and less prone to insect attack.

Silicea Produces Beautiful and Prolific Flowers

One spray of Silicea as flower buds are forming has been shown to increase the size and number of flowers produced.

Silicea Sets Fruit and Stops Fruit Fall

If sprayed at the beginning of flowering, Silicea has been shown to help trees and plants set their fruit so that it doesn't drop during early development. Only spray once, though or the reverse may happen – the tree may not produce fruit.

Silicea Makes Water-repelling Soil Absorbent

Some soils just hate water. Potting mixes, sandy soils, dusty soils, and soils high in organic matter are the worst offenders in this regard. They often absorb water so poorly that it simply rolls off them, leaving the plant dry and thirsty.

Silicea changes that. Once added to the soil, water repelling particles become hydroscopic creating more absorbent soil.

Silicea Greens a Desert

One of the most exciting things about Silicea is its potential to green a desert in a remarkably short space of time. One treatment, watered in, has been shown to produce desert sand that holds large amounts of water for long periods – up to 6 weeks even in the absence of rain.

Kaviraj speaks of an early experience during the 1990s when he was in Western Australia. On one farm north of Perth he and a small group of men began a tree planting project in an arid area that was almost completely sand.

First, they sprayed the ground with homeopathic Silicea and then left it to rest for 6 or so weeks. On their return to plant several hundred saplings, they found the soil was so moist that wet sand clung to their spades as they pulled them out of the ground.

On their next visit, 6 weeks later, they were met by an army of thriving young saplings that were larger, stronger, and more vigorous than could have been expected for the soil

they had been planted into – and all from a single spray of Silicea. To Kaviraj's knowledge, that once arid piece of land remains green to this day.

While not exactly a desert, Kaviraj says that similar results can be achieved with bowling greens and other similar courses where a watering with Silicea onto patches of bare ground and 'fairy spot ring' will stimulate the rapid growth of thick healthy turf.

He concludes with the following statement, "This greening of the desert can add tremendously to our surface of arable land and thus increase the CO_2 uptake by another 30 to 40 %. It will also help in alleviating world hunger and provide enough food for all the world's inhabitants – provided of course we divide the benefits equally."

Silicea has Benefits for Moon Phase Gardeners

Silicon is one of the major components of the moon. For this reason, those who use the phases of the moon to guide their planting say that homeopathic silica should be applied at the full-moon phase if wanting to induce flowering, and that plants that germinate during certain moon-phases are strongly influenced by it. Fruit-setting and the reaching of maturity are also seen to be influenced by phases of the moon.

It is interesting to note that in humans and animals, those who need homeopathic silica often experience an aggravation, or sometimes an amelioration of their symptoms during different phases of the moon.

ROLE OF BELLADONNA IN AGRO HOMOEOPATHY

Belladonna plays a good role Agro-Homoeopathy. Belladonna produces and cures epidemic diseases of sudden origin. Belladonna is one of the important anti-inflammatory remedy which has several roles in reducing the inflammatory effects in the plants

ROLE OF ACONITE IN AGRO HOMOEOPATHY

Aconite is another good remedy which has good role in curing the epidemic diseases sudden in origin. It is so useful in diseases after the effect of climatic changes which produce sudden origin of symptoms.

Aconite produces a typical blackish discolouration in the leaves of the plants which destroys the plant suddenly and in buds it produces a rapid destruction of the buds. In flowering plants it produces withering of the flowers which is sudden in origin,

Bacterial Blotch Disease:

Bacterial blotch may occur as an endemic on mushroom farms, damage mushroom quality and pose a potential yield. Bacterial blotch usually appears in the end of the cultivation cycle, when ventilation is weaker and mushrooms are not cared for enough. In some farms, the bacteriosis is present as an epidemic disease (constant disease). Here the Bacteria survive between separate batches on various surfaces, in waste, on tools and equipment.

Common Names

Bacterial blotch, Brown blotch, Bacterial spot

The Causative Pathogen

Pseudomonas fluorescens biotype G

Earlier Names:

Pseudomonas tolaasii, *Phytomonas tolassi*, *Bacterium tolaasi*

The pathogen Pseudomonas fluorescens biotype G, mostly affects in summer-autumn time, when the relative humidity and the temperature of the outside air is high enough. Moreover, under improper conditions of cultivation, insufficient ventilation after irrigation causes the mushrooms to remain moist for a long period of time, which promotes the development of the disease.

Sign:

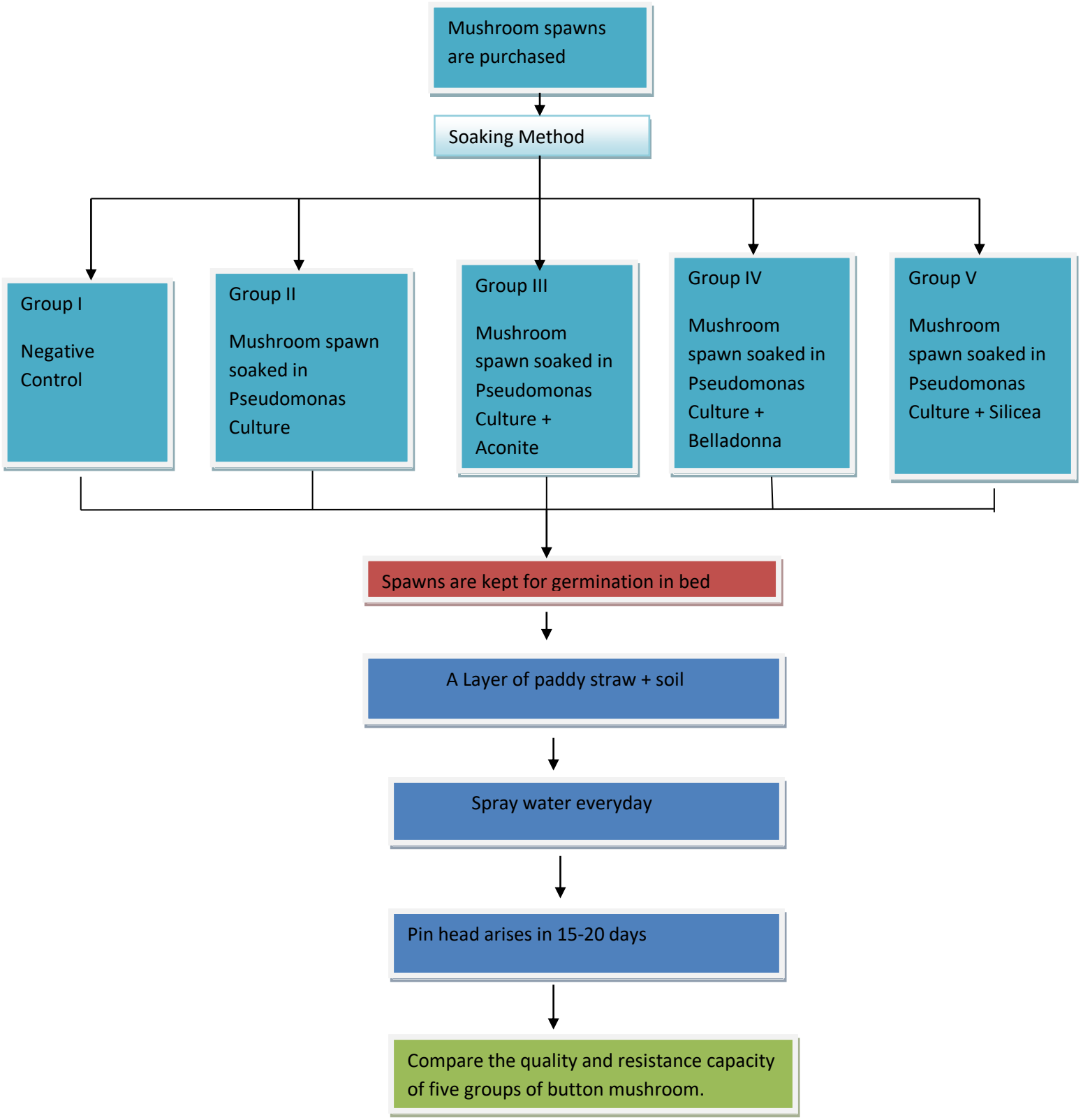
The surfaces of the mushrooms do not dry following watering, irrespective of the season There is formation of lesions on mushroom tissue that are initially pale yellow, but later becomes golden yellow or rich chocolate brown. Typically, spotting is found at or near the edge of mushroom caps - at the contact points between two mushroom caps, at 3 crevices in clusters of mushrooms, or wherever mushroom caps remain wet for a period of 4 to 6 hours or longer after

water has been applied. This discoloration is superficial, no more than 2 to 3 mm deep, and the underlying mushroom tissue may appear to be water soaked and grey or yellow-grey. Blotches usually appear when the mushrooms are in the early button stage, but can appear at any age - even on harvested refrigerated mushrooms or mushrooms over-wrapped with a watertight film. If very dry conditions occur after blotch has developed, infected caps may crack radially as the mushroom expands. In severe cases mushrooms get radially streaked. If favorable conditions like moisture persists (High humidity and watery conditions), the spots enlarge and coalesce, coves the entire mushroom cap. Mushroom stems can also be blemished similarly.

Mode of infection:

Casing and air-borne dust are the primary means of introducing the blotch pathogen into a mushroom house. The bacterial pathogen is probably present in most casing material, even after pasteurization. Prevalence of disease is associated with the size of the bacterial count on the mushroom cap (pileus), rather than count in the casing, this is why a prolonged wet period on the cap precedes disease occurrence. Once the disease occurs, blotch-causing bacteria are spread by splash-dispersal during watering, upon tools used by pickers and trashers, and by mushroom flies and nematodes.

METHODOLOGY IN PRECISE



Procedure:

Growing mushrooms is done on compost held in plastic bags

1. Making the Compost
   Raw materials for the compost are mixed together, moistened and composted.

2. Spawning.
   The compost is dried and conditioned to achieve optimum growth of the spawn so that it can fill the compost with mycelia over a period of weeks.

3. Casing.
   Casing involves placing a layer on top of the compost, to bring about environmental conditions which encourage the formation of fruiting

4. Harvest
   After several weeks, the fruiting body matures and hence harvested.

The Button Mushroom (Agaricus bisporus) is grown on a wide variety of composts, including those made with horse or chicken manure and plant wastes like wheat straw and corn cobs. Mushroom spawn is added to the pasteurized compost. Once the fungus colonizes the compost, with 50 percent of the surface area showing white mycelium (pH of 7-7.5). Mushroom spawn is sometimes added to the casing to increase yield. Thereafter, it takes a week to 10 days for the fungus to start pinning, or producing mushroom fruiting body precursors.

In vitro study of *Pseudomonas tolaasii* against Aconite, belladonna, Silicea 30

Isolation of ***Pseudomonas tolasi from infected Mushroom***

1 g of the infected mushroom sample grown in group II,III,IV and V was individually diluted with 90 ml of sterile distilled water and mixed well (10^{-1}dilution). Serial dilutions were prepared till 10^{-5} and spread plate technique was used on appropriate selective media. Kings Medium B Base is recommended for non-selective isolation, cultivation and pigment production of Pseudomonas species. Plates were made by pouring (15mL) sterilized Kings agar medium and allowed to solidify for a few minutes in aseptic condition. A volume of 0.1 ml of prepared dilutions were poured into each plate. With the help of L-shaped glass rod spreader, the poured inoculums were spread on the whole surface of the agar uniformly.

Antimicrobial activity of *Pseudomonas tolaasii* against Aconite, belladonna, Silicea 30

Filter paper discs of 6mm diameter loaded with 10µL of one selected Aconite, belladonna, Silicea 30 ethanol separately were placed on the surface of the bacteria seeded nutrient agar medium in the respective labeled area. All the plates were incubated in an inverted position for 24 hrs at 37°C. After incubation, the clear zone surrounding each disc (zone of inhibition) was measured with the help of measuring scale.

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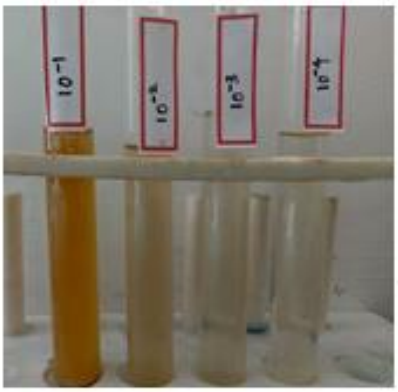
Blotched samples from Group II,III, IV,V

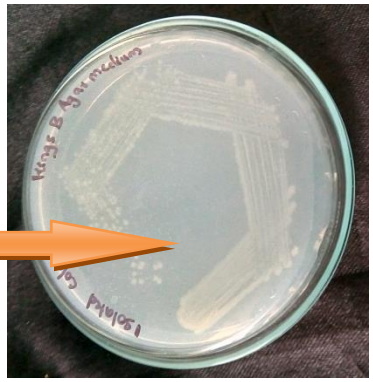
Samples were weighed to 1g and crushed with motor and pestle before serial dilution



Samples are serially diluted to 10^{-4} using distilled water

Spread Plate technique

Pure culture technique



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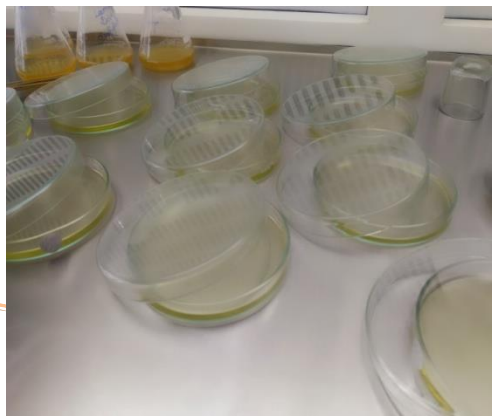
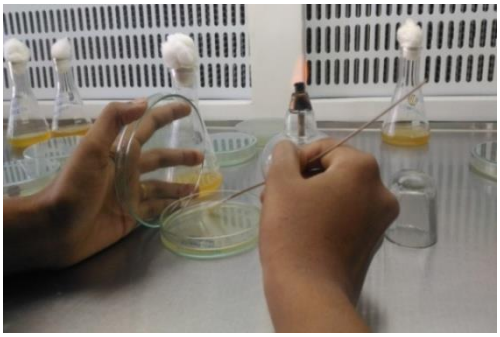
Preparation of culture plates



Dispensing media in the pertridish

Streaking of Organisms



Dispensing medicines in disc for checking antimicrobial activity

Antimicrobial activity of *Pseudomonas tolaasii* against remedies

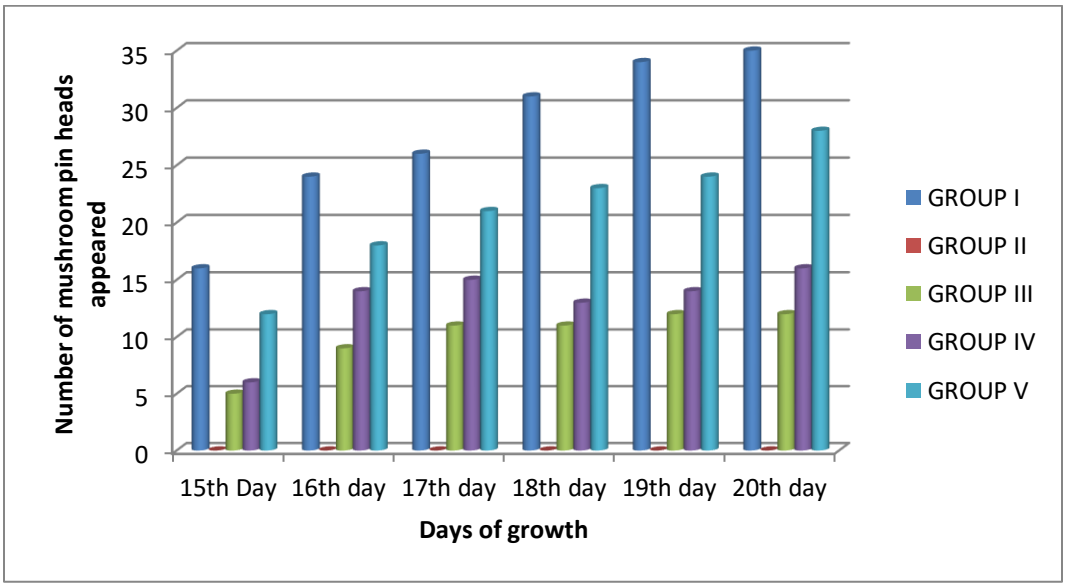
Step 1
- Blotched mushroom isolated
- Weighing and sampling

Step 2
- Serial dilution
- Spread plate technique

Step 3
- Enumeration in King's medium base B
- Pure culture technique to confirm the presence of *Pseumonas tolaasii*

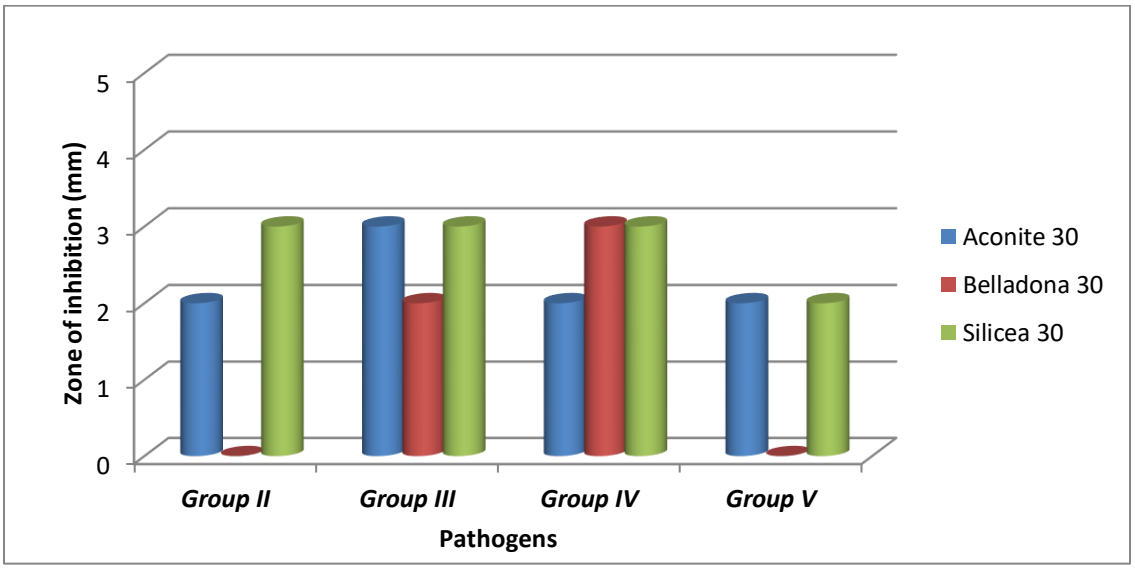
OBSERVATION

	GROUP I Negative control (Spawn only)	**GROUP II** Spawn + Culture	**GROUP III** Spawn + Culture + **Aconite**	**GROUP IV** Spawn + Culture + **Belladonna**	**GROUP V** Spawn + Culture + **Silicea**
15th Day	16	No growth seen	5	6	12
16th day	24	No growth seen	9	14	18
17th day	26	Mushroom bed became yellowish in color.	11	15	21
18th day	31	Mushroom bed is destroyed with brownish yellow discoloration	11	13	23
19th day	34	Destroyed	12	14	24
20th day	35	Destroyed	12	16	28



IN vitro analysis of the Pseudomonas tolasii with the remedies

Medicines	*Group II*	*Group III*	*Group IV*	*Group V*
Aconite 30	2	3	2	2
Belladona 30	0	2	3	0
Silicea 30	3	3	3	2



The antimicrobial activities of the medicines were studied using Belladonna, Aconite and Silicea in 30th in Muller hinton agar plates and Silicea 30 was found to be effective among all strains. It showed a zone of 3 mm against *Pseudomonas tolaasii* in all types of treatment.

SUMMARY

The mushroom spawns were divided into 5 groups.

On the

1st group there was no bacterial culture added and it was the negative control

2nd group – the mushroom spawns were injected with Pseudomonas Culture

3rd group - the mushroom spawns with Pseudomonas culture was soaked with Aconite 30

4th group – the mushroom spawns with Pseudomonas culture was soaked with Belladonna 30

5th group – the mushroom spawns with Pseudomonas culture was soaked with Silicea 30

Now, the mushroom groups were allowed to grow under bed casing method under similar conditions. It was observed that only from the Day 15, all the samples showed some bud growth except that of the 2nd group in which the mushroom spawns were with Pseudomonas culture. So, here we are taking the 15th Day to be the standard for observation and noting it as Day 1. It was seen that the mushrooms showed growth till 20th Day (6th day since the standard),and that of group 2 was noted to be destroyed by the bacterial growth shown by the Pseudomonas tolaasii. On the end of that day all the other groups which showed bud growth arrested the growth of bud and as the results were observed it was noted that **Group IV** in which the spawn was soaked with Belladonna was not affected with the bacterial infection and it also showed better and improved growth in the buds compared with the other samples. The antimicrobial activities of the medicines were studied using belladonna, Aconite and Silicea in 30th potency ; among all medicines Silicea 30 was found to be effective among all strains. It showed a zone of 3 mm against *Pseudomonas tolaasii* in all types of treatment.

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