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346	REVIEW ON TAIL REGENERATION MECHANISM OF XENOPUS LAEVIS AND CLINOTARSUS CURTIPES AS A THERAPEUTIC MODEL FOR REGENERATIVE MEDICINE	Dr. Sithi Jameela	Zoology	International Journal of Advanced Research	Nov 2021	2320-5407

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REVIEW ARTICLE

REVIEW ON TAIL REGENERATION MECHANISM OF XENOPUS LAEVIS AND CLINOTARSUS CURTIPES AS A THERAPEUTIC MODEL FOR REGENERATIVE MEDICINE

M. Sithijameela, S. Ramesh Kumar, M. Sanjeetha Subin, R. Marivignesh M.L. Zahir Hussain
 Department of Zoology, Sadakathullah Appa College (Autonomous), Rahmath Nagar, Tirunelveli-627001 Affiliated to Manonmaniam Sundaranar University, Tirunelveli, Tamilnadu, India.

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Clinotarsus curtipes, *Xenopus laevis*, Regenerative capability, Reactive oxygen species, TRKA signalling, Myeloid Lineage.

Abstract

The augmentation of regenerative capability is a powerful method for pursuing the regulation of degeneration, traumatic injury, and cancer. The tadpole, *Clinotarsus curtipes*, and *Xenopus laevis* is significant model system for addressing the fundamental regeneration mechanism that enables understanding the key aspects of regeneration medicine. The selected creatures *Clinotarsus curtipes* and *Xenopus laevis* could able to obtain both tissue regeneration and scar-free healing during the larval stage in spite of its predominant loss of such ability during the metamorphic process. Such transient capability associated with the evolutionary correlation with humans creates *Clinotarsus curtipes* and *Xenopus* a very good attractive model for uncovering the functional regeneration mechanisms. The study analyzed the existing literature on change in the levels of ROS that is required for the proper wnt-signaling in every regeneration system. Apart from that, the paper provided a comprehensive review on the histopathological view, regeneration signals like TGFB, FGF, BMP, Wnt, etc for successful regeneration. Factors that affect tail regeneration like O2 influx, epigenetics, and HDAC activity have also been provided. Significant other such criteria like the role of TRKA signaling, profiling, and intracellular protein expression followed by its corresponding challenges adds value to the paper. The study presents an overview of *Xenopus* and *Clinotarsus curtipes* as a model organism for the research and highlighted the new insights.

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1. Introduction:-

The tail of the tadpole is capable to regenerate its tail that includes notochord, vasculature, epidermis, spinal cord, and muscle. From the past decade, several researchers identified multiple molecular mechanisms that regulate tail regeneration like BMP, Notch TGF- β , and Wnt-FGF.

Corresponding Author:- M. Sithijameela
 Address:- Department Of Zoology, Sadakathullah Appa College (Atonomus), Rahmath Nagar, Tirunelveli-627001 Afflided To Manonmaniam Sundaranar University,Tirunelveli, Tamilnadu, India.

Sl. No	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN
347	Effect of Different Formulated Herbal Diets on the Proximate Composition of <i>Cyprinus carpio</i>	Dr. Sithi Jameela	Zoology	International Journal of Current Science Research	Mar 2017	2454-5422



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Effect of Different Formulated Herbal Diets on the Proximate Composition of *Cyprinus carpio*

Sithi Jameela.M^{1*} and Narayanan.M²

¹Associate Professor, Department of Zoology, Sadakathullah Appa College, Palayamkottai, Tirunelveli, India.

²Director, Aquatic Biodiversity Centre, St.Xavier's College, Palayamkottai, Tirunelveli, India.

*Corresponding author email: fm.sithijameela@yahoo.co.in

Abstract

The effect of three herbal treated fishes on protein, carbohydrate and lipid composition of *Cyprinus carpio* were studied. Three herbal formulated diets (*Withania somnifera* (Ws) *Mucuna pruriens* (Mp) and *Asparagus racemosus* (Ar)) at four different concentrations, in three size groups of *C. carpio* showed a significant increase in protein, carbohydrate and lipid. The proximate composition of three different herbal formulated diets fed fishes with three size groups was compared. The protein content was maximum in size group A of *Asparagus racemosus* diet fed fishes. The maximum carbohydrate content was observed in size group B of *Withania somnifera* diet fed fishes and maximum lipid content was reported in size group C of *Mucuna pruriens* diet fed fishes.

Keywords: *Withania somnifera*, *Mucuna pruriens* and *Asparagus racemosus*, proximate composition.

Introduction

Aquaculture has emerged as a promising animal husbandry practice to meet the demand of dietary protein. So attention has been given for efficient supplementary fish feeds. Certain alternative growth promoting supplemented feeds can be utilized to provide the vital nutrients and energy needed for the growth of aquaculture. Common carp *Cyprinus carpio* is one of the most widely cultured and domesticated fish in the world especially in Asia and Central and Eastern Europe. This species is mostly reared in ponds under extensive or semi intensive management (Turan *et al.*, 2007). Nutrition and feeding are the most important factors, which influence the ability of fish to achieve its growth. The manipulation of feed could lead

Sl. No	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN
348	SATIATION TIME AND FEEDING RATE OF MELANOCHROMIS AURATUS FED WITH VARIOUS LIVE FEED	Dr. Sithi Jameela	Zoology	J.Bio.Innov	July 2017	2277-8330

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Jameela et al.,

SATIATION TIME AND FEEDING RATE OF MELANOCHROMIS AURATUS FED WITH VARIOUS LIVE FEED

Jeyaseeli A, Sithi Jameela F.M*, Princes Adlin, P and M.Narayanan

Department of Zoology, St. Xavier's College (Autonomous), *Sadaikathulappan College (Autonomous), Palayamkottai, Tamil Nadu - 627002

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ABSTRACT

In the present investigation, series of experiments were carried out to study the satiation time and feeding rate of *Melanochromis auratus* (Golden cichlid) fed with live feed such as artemia, chironomus and mosquito larva. From the findings, it was observed that the satiation time was higher in larger size group fish when compared with smaller size group. It was also observed that biomass of fish clearly affected the satiation time. The variation in the satiation time might be due to size of the prey and also to the easier accessibility of the larva in the column and surface region of the aquaria. Rates of food consumption were measured as the satiation amount of prey consumed during the satiation time. It is interesting to point out that temperature had a significant effect ($P > 0.05$) on the satiation time. It is evident from the experiment at high temperature which clearly indicated that smaller size group showed higher consumption rate than the larger size group of experimental animals.

Key Words: Live feed, satiation time, feeding rate and *Melanochromis auratus*


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Sl. No	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN
349	Studies on Nutritional effect of <i>Arthrospira platensis</i> and <i>Saccharomyces cerevisiae</i> supplementation with silver nanoparticles on growth and economic traits of Silkworm, <i>Bombyx mori</i> L	Dr. Sithi Jameela	Zoology	Journal of Entomological Research	May 2020	0974-4576

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Studies on nutritional effects of *Arthrospira platensis* and *Saccharomyces cerevisiae* supplementation with silver nanoparticles on growth and economic traits of Silkworm, *Bombyx mori* L.

Vannasithi J., Sithi Jameela M. Sth
Department of Zoology, Sree Narayana College (Autonomous), Rahmath Nagar, Tirunelveli - 627011, Affiliated to Manonmaniam Sundaranar University, Tirunelveli, Tamil Nadu, India

Abstract

In the present study, the growth rate of larvae and cocoon of silkworm *Bombyx mori* fed with silver nanoparticles (AgNps) treated MR2 mulberry leaves was studied. The different concentrations (10, 20 and 30%) of prepared silver nanoparticles were given to the larvae. The Average cocoon weight was found highest in 30% concentration T3 and (0.423 ± 0.012 g) and T6 (0.583 ± 0.051 g) over the control (0.316 ± 0.041 g) respectively. The pupal weight of *B. mori* was found to be highest with 30% AgNps treatment of *Arthrospira platensis* and *Saccharomyces cerevisiae* were T3 (0.213 ± 0.026 g) and T6 (0.353 ± 0.083 g) compared to control (0.16 ± 0.016). The AgNps treated larvae showed maximum shell weight in T3 (0.753 ± 0.29 g) and T6 (0.843 ± 0.37 g). Fibroin content in T3 (82.099%) and T6 (83.44%) and sericin content in T3 (17.90%) and T6 (916.55%) was observed and provides a good reliability. The treatments T3 (777 ± 100.9434 m), and T6 (766,666 ± 51,096 m) showed maximum filament length as compared to control. The influence of mulberry leaves enriched with Ag Nps of spirulina and yeast exhibited their highest single silk filament weight, T3 (0.21 ± 0.029 g) and T6 (0.23 ± 0.0374 g) respectively, when compared to control (0.15666 ± 0.0262 g).

Keywords

AgNps treatment, *Arthrospira platensis*, *Bombyx mori*, Economic traits, Larval growth, *Saccharomyces cerevisiae*, Silk parameters.

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350	Effect of Herbal Formulated Diet on Fish (Cyprinus Carpio) Energetics	Dr. Sithi Jameela	Zoology	Sadakath: A Research Bulletin	July 2020	2347-7644

Sadakath: A Research Bulletin

Effect of Herbal Formulated Diet on Fish (Cyprinus Carpio) Energetics

Dr. Sithi Jameela, M.¹ and Narayanan, M.²

Abstract

Fish is an important source of food in many developing countries due to their high quality protein content and other essential nutrients. The main challenge and objective in intensive cultivation methods is to increase the growth rate of fish in a cost effective manner. Many studies and findings suggest that herbal additives can be used in fish feed to enhance the growth kinetics of fish. The study employs three immunostimulant herbs- Withania somnifera (root), Mucuna pruriens (seed) and Asparagus racemosus (root) at different concentrations of 0.5%, 1%, 1.5% and 2.0% to evaluate the energy budget in fish Cyprinus carpio. Low concentrations of 0.5% of A.racemosus and 0.5% and 1.0% concentration of W.somnifera showed a higher rate of energy consumption. Mucuna pruriens herbal diet fed fishes at a high concentration of 2% caused significant increased rate of energy consumption, energy absorption and growth. In conclusion, the study ratified that herbal feed additives in fish diet alters the energy metabolism of fish and hence enhance their growth rate.

Keywords: Herbal Feed Additives, Fish Energetics, Withania Somnifera, Mucuna Pruriens, Asparagus Racemosus.

Introduction:

During this decade , aquaculture continued to advance more rapidly than any other field of animal production in the world and is expected to keep expanding to provide fish for the growing world population. As aquaculture production increases, it must contend with rapidly approaching limits on key feed ingredients and on increasing sensitivity to the effects of aquaculture on the aquatic environment. In 1783, Antoine Lavoisier and Pierre Laplace performed a series of exceptional experiments considered as the foundation of bioenergetics and modern nutrition (Marianna Karamanou and George Androustus, 2013). Ege and Krogh were the first to apply the principles of bioenergetics to fish (John Halver and Ronald Hardy, 2002). Use of

1 Associate Professor and Head, Department of Zoology, Sadakathullah Appa College (Autonomous), Tirunelveli - 627 011, Tamil Nadu, India. (Affiliated to Manonmaniam Sundaranar University, Tirunelveli – 627 012)

2 Director, Aquatic Biodiversity Centre, St.Xavier's College, Tirunelveli. - 627 002, Tamil Nadu, India. (Affiliated to Manonmaniam Sundaranar University, Tirunelveli – 627 012)

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REVIEW ARTICLE

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M. Sithijameela, S. Ramesh Kumar, M. Sanjeetha Subin, R. Marivignesh M.I. Zahir Hussain

Department of Zoology, Sadakathullah Appa College (Autonomous), Rahmath Nagar, Tirunelveli-627001 Affiliated to Manonmaniam Sundaranar University, Tirunelveli, Tamilnadu, India.

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Abstract

The augmentation of regenerative capability is a powerful method for pursuing the regulation of degeneration, traumatic injury, and cancer. The tadpole, *Clinotarsus curtipes*, and *Xenopus laevis* is significant model system for addressing the fundamental regeneration mechanism that enables understanding the key aspects of regeneration medicine. The selected creatures *Clinotarsus curtipes* and *Xenopus laevis* could able to obtain both tissue regeneration and scar-free healing during the larval stage in spite of its predominant loss of such ability during the metamorphic process. Such transient capability associated with the evolutionary correlation with humans creates *Clinotarsus curtipes* and *Xenopus* a very good attractive model for uncovering the functional regeneration mechanisms. The study analyzed the existing literature on change in the levels of ROS that is required for the proper wnt-signaling in every regeneration system. Apart from that, the paper provided a comprehensive review on the histopathological view, regeneration signals like TGF β , FGF, BMP, Wnt, etc for successful regeneration. Factors that affect tail regeneration like O₂ influx, epigenetics, and HDAC activity have also been provided. Significant other such criteria like the role of TRKA signaling, profiling, and intracellular protein expression followed by its corresponding challenges adds value to the paper. The study presents an overview of *Xenopus* and *Clinotarsus curtipes* as a model organism for the research and highlighted the new insights.

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Corresponding Author: - M. Sithijameela

Address:- Department Of Zoology, Sadakathullah Appa College (Atonomus), Rahmath Nagar, Tirunelveli-627001 Aflided To Manonmaniam Sundaranar University,Tirunelveli, Tamilnadu, India.

Sl. No	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN
352	Ovicidal and larval repellent efficacy of <i>Tagetes erecta</i> Linn. on <i>Rhipicephalus sanguineus</i> (Latreille, 1806) (Acari: Ixodidae)	Dr.M.I.Zakir Hussain	Zoology	ENTOMON	Dec 2021	0377-9335

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on *Rhipicephalus sanguineus* (Latreille, 1806) (Acari: Ixodidae) | ENTOMON



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on *Rhipicephalus sanguineus* (Latreille, 1806) (Acari: Ixodidae)

S. Sahina

M. I. Zakir Hussain

R. Eelaksubramanian

DOI: <https://doi.org/10.3333/Entomon.v46.4.64>

ABSTRACT

A study was undertaken on the ovicidal and larval repellent activity of *Tagetes erecta* leaf and flower extracts on *Rhipicephalus sanguineus* (Latreille, 1806), an important tick species in the world from an economic and medical point of view. Ethanol and methanol extracted plant products tested against the eggs and larvae of *R. sanguineus* indicated that the ethanol extract of flower had maximum ovicidal activity (86.1%), followed by the ethanol extract of leaf (75%) at 25 mg ml⁻¹ concentration. In all analyses, the homogeneity of variance was significant. The probit analysis clearly indicated that the ethanol extract of the flower has a higher ability to kill the eggs. In the case of larval repellency tested, both extracts of leaf showed the highest repellency (83%) at 2.5 mg ml⁻¹. Significant tick repellency (> 90%) was found in both methanol and ethanol extracts of flower at 2.5 mg ml⁻¹. GC-MS analysis of extracts revealed the presence of bioactive insecticidal compounds such as ylangabin, cyclohexane and neophytadine.

AUTHOR BIOGRAPHIES

S. Sahina

Sadukathullah Appa College (autonomous), Rahmiah nagar, Tirunelveli 627011, Tamil Nadu, India

Sl. No	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN
353	An Assessment of Dental Fluorosis in School Children of Vallioor Union in Tirunelveli District	Dr. Saifullah Mohamed Ramlath Sabura	Zoology	World Journal of Pharmaceutical Research (WJPR)	August 2019	2277-7105



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AN ASSESSMENT OF DENTAL FLUOROSIS IN SCHOOL CHILDREN OF VALLIOOR UNION IN TIRUNELVELI DISTRICT

Saifullah Mohamed Ramlath Sabura^{*1} Somasundaram Muthalagi² and Magil Inbaraj Delighta Mano Joyce³

^{1,2}Department of Zoology, Sadakathullah Appa College, Tirunelveli.

²Department of Zoology, Thiru Kolanjiappar Govt. Arts College, Virudhachalam.

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***Corresponding Author**
Saifullah Mohamed
Ramlath Sabura
Department of Zoology,
Sadakathullah Appa College,
Tirunelveli.

ABSTRACT

Background: Fluorosis is an important public health problem in many countries, including India. In the present study, prevalence and severity of dental fluorosis among residents of selected villages of Vallioor union in Tirunelveli District, Tamil Nadu, India, were studied.

Methodology: A total of 470 students aged between 5-16 were selected, examined and oral examination was performed after getting consent from the parents of selected children and the data was collected through the questionnaire. Students with dental fluorosis were examined as per Dean's classification. The fluoride content of the drinking water, Community fluorosis index (CFI) and Fluoride

exposure levels of the students were also calculated. **Results:** The highest percentage of dental fluorosis was seen in Lebbaikudieruppu with 75% and Periyamayagipuram with 59.25% and the amount of fluoride present in the drinking water in these areas ranged from 2.1 ppm to 4.6 ppm. The present study indicated that almost all the study areas are high fluorotic as the CFI exceeds 0.6. **Conclusion:** High prevalence of dental fluorosis and high community fluorosis index suggest that fluorosis is a major public health problem in the study areas. **Recommendations:** Fluoride poisoning can be prevented or minimized by using alternative water sources or by removing excessive fluoride (de-fluoridation) from drinking water and they can be advised to include protein rich food (with calcium and vitamin C) in their daily diet.

KEYWORDS: Fluorosis, Fluoride, Vallioor, de-fluoridation, Dean's classification.

Sl. No	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN
354	Influence of Mushroom Silver Nanoparticles Enriched Mulberry, a Feed Supplement of Silkworm Bombyx Mori L. on its Growth Parameters	Dr. Saifullah Mohamed Ramlath Sabura	Zoology	Sadakath: A Research Bulletin	Jan 2020	2347-7644

Sadakath: A Research Bulletin

Influence of Mushroom Silver Nanoparticles Enriched Mulberry, a Feed Supplement of Silkworm Bombyx Mori L. on its Growth Parameters

Delighta Mano Joyce, M.I.¹ and Mohamed Ramlath Sabura, S.²

Abstract

The study aims to investigate the effects of supplementary nutrients on silkworm, Bombyx mori. An experiment was conducted with the fortification of mulberry leaves with mushroom extract treated with silver nanoparticles. Two types of mushrooms such as Oyster and Button mushrooms were used. Leaves enriched with mushroom (Oyster and Button) extract of different concentrations (1%, 2% and 3%) were fed to fifth instar larvae. These treatments resulted in an increased food efficacy factors such as, Food Consumption, Food Assimilation, Approximate Food Digestibility, Food Consumption Index and Coefficient of Food Utilization. Almost in all the experimental concentrations, feed efficacy had significant difference compared to control. There is a little elevation observed in 1% concentration. In conclusion, these data clearly designate the effectiveness of feed supplement ingredients on growth factors by improving the silk content and enhancing the commercial qualities of cocoon shell of silkworm. Bombyx mori. L.

Keywords: Bombyx Mori, Silver Nanoparticles, Mulberry Leaves, Oyster and Button Mushroom.

Introduction:

Rearing of silkworm for the production of silk is silk farming or Sericulture. It is an agro-based cottage industry, involving interdependent rural, semi-urban and urban-based activities that has the highest potential for improving the rural economy besides being an eco-friendly, sustainable and which millions of farming families are dependent on this industry for their livelihood owing to high employment oriented, low capital intensive and remunerative nature of its production across the world, including India. All the sections of sericulture industry, viz. mulberry cultivation, silkworm seed production, silkworm rearing, reeling and weaving of silk and collection of byproducts and its processing provide a large scale employment and periodic returns all round the year, thus improving the socio-

¹ Assistant Professor, PG Department of Zoology, Sadakathullah Appa College (Autonomous), Tirunelveli - 627 011, Tamil Nadu, India. (Affiliated to Manonmaniam Sundaranar University, Tirunelveli - 627 012)

² Assistant Professor, Department of Zoology, Sadakathullah Appa College (Autonomous), Tirunelveli - 627 011, Tamil Nadu, India. (Affiliated to Manonmaniam Sundaranar University, Tirunelveli - 627 012)

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355	Effect of Probiotics on the growth and survival rate of Indian major carp <i>Labeo rohita</i>	S.Peer Mohamed	Zoology	International journal of Biosciences and Nanosciences	Dec 2017	2349-5251

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Effect of Probiotics on the growth and survival rate of Indian major carp *Labeo rohita*

Abdul Kader Mohideen. M. M^{1*}, S. Peer Mohamed² and R. Janet Rani³

¹Department of Microbiology, Sadakathullah Appa College (Autonomous), Tirunelveli -627011, India

²Department of Microbiology, Sadakathullah Appa College (Autonomous), Tirunelveli -627011, India

³Department of Microbiology, Sadakathullah Appa College (Autonomous), Tirunelveli -627011, India

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*Author to whom corresponding should be addressed
Email: gonashahul@gmail.com

Abstract: In this study the effect of Probiotics preparation (*Lactobacillus* sp and *Bacillus* sp) was investigated against fish bacterial pathogen *Aeromonas hydrophila* and also evaluates their effectiveness on the growth and survival rate in fresh water fish *Labeo rohita*. *In vitro* antagonism test of the probiotics was performed by using well diffusion method. The inhibition zone of 9 mm was observed against *A. hydrophila*. For *in vivo* evaluation 500 *Labeo rohita* fish fingerlings with an average body weight of 8.00 g/fish were equally divided into 4 treatment tanks with 300L capacity, initially fishes in all tubs fed with probiotics combination for 42 days except control. After that they were challenged by *A. hydrophila* feed twice within 7 days. The results regarding the weight gain, specific growth rate (SGR) and feed conversion ratio (FCR) noticed in probiotic treated tanks. The fish challenged with *A. hydrophila* in control tub showed 80% mortality rate, the probiotics treated tub showed below 12 % mortality rate respectively. So, it was concluded that the use of probiotics significantly enhanced the growth and survival of the fish *Labeo rohita*.

Keywords: Probiotics, *Labeo rohita*, *in vitro* Antagonism, Fingerlings, Mortality rate

1. INTRODUCTION

Aquaculture is one among the fastest growing food producing systems, which has been emerged recently as an industry and now it is possible to supply protein rich food throughout the world. Disease management is one of the major constraints in the successful development of aquaculture. It can be done by two methods such as prophylaxis and curing method. The prophylactic and therapeutic control of the bacterial diseases is based on the oral administration of antibiotics; however, such a treatment may cause the development of resistant bacteria (Aoki *et al.*, 1980). Use of expensive antibiotics for controlling disease has widely been criticized for their negative impact like residual accumulation, development of drug resistance and immune suppression, thus resulting in reduced consumer preference for fish food treated with antibiotics (Anderson, 1992).

In addition, antibiotics can affect the normal microflora of digestive tract which is beneficial to host and may be inhibited by treatment (Aly *et al.*, 2008). In this respect, use of probiotic bacteria is a new approach gaining acceptance in aquaculture to control potential pathogens (Gomez-Gil *et al.*, 2000; Kim and Austin 2008).

Probiotics are products designed to deliver potentially beneficial bacterial cells to the microbiotic ecosystem of humans and other animals. The use of commercial probiotics in fish is relatively ineffective unable to survive or remain viable at high cell density in the intestinal environment of fish during the active growth phase of the fish (Moriarty, 1996). Hence, there is elegant logic in isolating putative probiotics from the host in which the probiotics intended for use. Such strains should perform better because they have already adhered to the gut

Sl. No	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN
356	PRELIMINARY PHYTOCHEMICAL ANALYSIS OF CROTON CAUDATUS VAR. CAUDATUS GEISLER AND POUZOLZIA WIGHTII BENN. FROM PAPANASAM, TAMIL NADU, SOUTH INDIA	Syed Ali Fathima	Botany	International Journal of Research in Engineering and Bioscience	Apr 2016	2321-743X

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Syed Ali Fathima, M and Johnson, M*

Centre for Plant Biotechnology, St. Xavier's College (Autonomous), Palayamkottai,
Tamil Nadu, India - 627 002

ABSTRACT

The present study was aimed to investigate the phytochemical profile of medicinally important plants *Croton caudatus* var. *caudatus* Geisler and *Pouzolzia wightii* Benn. The dried powder of three different parts such as leaf, stem and root of *C. caudatus* var. *caudatus* and *P. wightii* was sequentially extracted with five different solvents namely petroleum ether, chloroform, acetone, ethyl acetate and ethyl alcohol using soxhlet apparatus. Among the five different solvent the qualitative phytochemical analysis revealed that ethanol extract of *C. caudatus* var. *caudatus* and *P. wightii* contained maximum number of metabolites. The results of the present study correlated the medicinal value of *C. caudatus* var. *caudatus* and *P. wightii* with the existence of different chemical metabolites like alkaloids, flavonoids, phenolic compounds, steroids, saponins, tannins and triterpenoids which have been reported to possess diverse medicinal properties.

Keywords: *Croton caudatus* var. *caudatus*, *Pouzolzia wightii*, Phytochemical profile

INTRODUCTION

Nature has been a source of medicinal values since times immemorial. The plant kingdom harbors on inexhaustible source of active ingredients in the management of many intractable diseases (Jigna and Sumitra, 2007). Most plant consists therapeutic agents are also a big source of information for a wide variety of chemical compounds which could be developed as drugs with precise selectivity (Manjulika *et*

al., 2014). Drugs from plants are easily available, less expensive, safe and more efficient and have fewer side effects. About 80% of world population depends on the herbal medicine. A large proportion of the rural population in developing countries depends on biodiversity for livelihood, nutrition and health (Cathrine and Prabavathi, 2011). Phytochemicals are naturally occurring in the medicinal plants, leaves, vegetables, stem, root

Sl. No	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN
357	SPECTROSCOPIC STUDIES ON POUZOLZIA WIGHTII BENN	Syed Ali Fathima	Botany	International Journal of Pharmacy and Pharmaceutical Sciences	Apr 2017	0975-1491



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Original Article

SPECTROSCOPIC STUDIES ON POUZOLZIA WIGHTII BENN

SYED ALI FATHIMA M., JOHNSON M.*

Centre for Plant Biotechnology, Research Department of Botany, St. Xavier's College (Autonomous), Palayamkottai, Tamil Nadu, India
627002

Email: ptcjohnson@gmail.com

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ABSTRACT

Objective: The present study was aimed to reveal the spectroscopic profile (UV-Vis and FT-IR) of *Pouzolzia wightii* Benn.

Methods: To detect the UV-Vis spectroscopic profile of *P. wightii* crude extracts were examined under UV-Vis Shimadzu spectrophotometer with the wavelength ranged from 100 to 1100 nm. About 1 mg of different extracts of petroleum ether, chloroform, ethyl acetate and acetone, ethanolic extracts of *P. wightii* were separately made into thin discs with 10-100 mg of potassium bromide using a mould and pressed under anhydrous conditions. The pellets were measured in an automatic recording FT-IR Spectrophotometer (Shimadzu 8400S) in the range of 400 to 4000 cm⁻¹.

Results: In UV-Vis analysis, *P. wightii* petroleum ether extracts showed more number of peaks in roots (15) than other studied parts. Chloroform and ethyl acetate extracts of *P. wightii* leaves observed 9 peaks and acetone extracts of *P. wightii* stem showed 10 peaks. Medicinal property of plant extracts are confirmed by the presence of secondary metabolites. FT-IR analysis of ethyl acetate extracts of *P. wightii* leaves, stem and root observed the highest number of (16, 12 and 16) functional compounds.

Conclusion: These UV-Vis and FT-IR spectroscopic results may be used as a pharmacognostic marker in the pharmaceutical industries and can be used as a chemometric tool to distinguish the studied *P. wightii* leaves, stem and root. The present study used to find out the bioactive compounds which may be subjected to subsequent target isolation. Further research will be needed for the structural characterization of the isolated compound by the use of different analytical methods such as NMR and mass spectrophotometer.

Keywords: *Pouzolzia wightii*, FT-IR, Fourier Transform-Infra Red, UV-Vis-Ultra Violet-Visible, Pharmacognosy

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INTRODUCTION

Medicinal plants are abundantly available all over the world and are gaining a lot of attention due to their specific role in various health care of human immune system in different nations. They serve as therapeutic agents as well as important raw materials for the manufacture of traditional and modern medicine [1]. Plant-based drugs are highly effective, low cost, easily available, evidently minor toxicity as side effects and proving to be a good substitute for allopathic medicines [2]. Phytochemicals are biologically active chemical compounds naturally present in a plant which acts as a natural defence system for plants and provide aroma, colour and flavour. They have a significant role in treating human diseases such as cancer, coronary heart diseases, diabetes and infectious diseases [3]. The therapeutic properties of medicinal plants are due to some phytochemical compounds. Various secondary metabolites with different biopotency were present in medicinal plants which include flavonoids, carotenoids, alkaloids, anthocyanidins, phenolics, tannins, carboxylic acids, terpenoids, amino acids and inorganic acids [4]. Presence of these phytoconstituents provides specific distinctiveness and properties to the plants [5]. Therefore, the phytochemical analysis of these constituents would help in determining various biological activities of plants. A variety of techniques can be used to determine the presence of such phytoconstituents in medicinal plants. Spectroscopic (FT-IR, Fourier Transform-Infra Red; UV-Vis-Ultra Violet-Visible) methods together or separate can be used in this sense as well as conventional methods [6]. In many applications other techniques are available but UV-Visible spectrometry is specifically used for its simplicity, versatility, speed, accuracy and cost-effectiveness; it is used to determine the chemical compounds of the plants.

UV-Vis spectrophotometry related to the spectroscopy of photons in the UV-visible region. UV-Visible spectroscopy uses light in the visible ranges or its adjacent ranges. FT-IR is a measurement technique to identify the functional constituents and concrete

structure of certain plant secondary metabolites [7, 8]. In chemotaxonomy and pharmacognosy, the UV-Vis and FT-IR spectroscopic profiles are used as a biochemical and pharmacognostical marker to identify the medicinal source. But there is no report on the spectroscopic studies of *Pouzolzia wightii* Benn. With this background, the present study was aimed to reveal the spectroscopic profile (UV-Vis and FT-IR) of *Pouzolzia wightii* Benn.

MATERIALS AND METHODS

Preparation of extracts

Pouzolzia wightii Benn was collected from their natural habitats and thoroughly washed by using tap water and then followed by distilled water to remove the unwanted debris. To remove the excess water, plant samples were blotted on the blotting paper and shade dried at room temperature for 20 d. The shade dried samples were grounded to a fine powder using a mechanical grinder. The powdered samples were stored in airtight container. The powdered materials (30 g) of *P. wightii* were successively extracted with 400 ml of petroleum ether, chloroform, ethyl acetate, acetone and ethanol (Hi-Media, Mumbai) using Soxhlet extractor for 8-12 h at a temperature not exceeding the boiling point of the solvents. The residues of the plant samples were obtained and stored in a refrigerator at 4°C for further studies.


Chemicals and reagents

The solvents used in this study are purchased from Hi-Media, Mumbai, India.

UV-Vis analysis

UV-Vis spectrophotometer analysis, the extracts were centrifuged at 3000 rpm for 10 min and filtered through Whatmann No. 1 filter paper and the filtrate was used for spectroscopic analysis. To detect the UV-Vis spectroscopic profile of *P. wightii* crude extracts were examined under UV-Vis Shimadzu spectrophotometer with the wavelength ranged from 100 to 1100 nm.

Sl. No	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN
358	An Assessment of Dental Fluorosis in School Children of Vallioor Union in Tirunelveli District	Delighta Mano Joyce	Zoology	World Journal of Pharmaceutical Research (WJPR)	July 2019	2277-7105



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AN ASSESSMENT OF DENTAL FLUOROSIS IN SCHOOL CHILDREN OF VALLIOOR UNION IN TIRUNELVELI DISTRICT

Saifullah Mohamed Ramlath Sabura^{*1} Somasundaram Muthalagi² and Magil Inbaraj Delighta Mano Joyce³

^{1,2}Department of Zoology, Sadakathullah Appa College, Tirunelveli.
²Department of Zoology, Thiru Kolanjiappar Govt. Arts College, Virudhachalam.

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***Corresponding Author**
Saifullah Mohamed Ramlath Sabura
Department of Zoology,
Sadakathullah Appa College,
Tirunelveli.

ABSTRACT
Background: Fluorosis is an important public health problem in many countries, including India. In the present study, prevalence and severity of dental fluorosis among residents of selected villages of Vallioor union in Tirunelveli District, Tamil Nadu, India, were studied.
Methodology: A total of 470 students aged between 5-16 were selected, examined and oral examination was performed after getting consent from the parents of selected children and the data was collected through the questionnaire. Students with dental fluorosis were examined as per Dean's classification. The fluoride content of the drinking water, Community fluorosis index (CFI) and Fluoride exposure levels of the students were also calculated. **Results:** The highest percentage of dental fluorosis was seen in Lebbaikudieruppu with 75% and Perianayagipuram with 59.25% and the amount of fluoride present in the drinking water in these areas ranged from 2.1 ppm to 4.6 ppm. The present study indicated that almost all the study areas are high fluorotic as the CFI exceeds 0.6. **Conclusion:** High prevalence of dental fluorosis and high community fluorosis index suggest that fluorosis is a major public health problem in the study areas. **Recommendations:** Fluoride poisoning can be prevented or minimized by using alternative water sources or by removing excessive fluoride (de-fluoridation) from drinking water and they can be advised to include protein rich food (with calcium and vitamin C) in their daily diet.

KEYWORDS: Fluorosis, Fluoride, Vallioor, de-fluoridation, Dean's classification.

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Sl. No	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN
359	Influence of Mushroom Silver Nanoparticles Enriched Mulberry, a Feed Supplement of Silkworm Bombyx Mori L. on its Growth Parameters	Delighta Mano Joyce	Zoology	Sadakath: A Research Bulletin	Jan 2020	2347-7644

Sadakath: A Research Bulletin

Influence of Mushroom Silver Nanoparticles Enriched Mulberry, a Feed Supplement of Silkworm Bombyx Mori L. on its Growth Parameters

Delighta Mano Joyce, M.I.¹ and Mohamed Ramlath Sabura, S.²

Abstract

The study aims to investigate the effects of supplementary nutrients on silkworm, Bombyx mori. An experiment was conducted with the fortification of mulberry leaves with mushroom extract treated with silver nanoparticles. Two types of mushrooms such as Oyster and Button mushrooms were used. Leaves enriched with mushroom (Oyster and Button) extract of different concentrations (1%, 2% and 3%) were fed to fifth instar larvae. These treatments resulted in an increased food efficacy factors such as, Food Consumption, Food Assimilation, Approximate Food Digestibility, Food Consumption Index and Coefficient of Food Utilization. Almost in all the experimental concentrations, feed efficacy had significant difference compared to control. There is a little elevation observed in 1% concentration. In conclusion, these data clearly designate the effectiveness of feed supplement ingredients on growth factors by improving the silk content and enhancing the commercial qualities of cocoon shell of silkworm, Bombyx mori. L.

Keywords: Bombyx Mori, Silver Nanoparticles, Mulberry Leaves, Oyster and Button Mushroom.

Introduction:

Rearing of silkworm for the production of silk is silk farming or Sericulture. It is an agro-based cottage industry, involving interdependent rural, semi-urban and urban-based activities that has the highest potential for improving the rural economy besides being an eco-friendly, sustainable and which millions of farming families are dependent on this industry for their livelihood owing to high employment oriented, low capital intensive and remunerative nature of its production across the world, including India. All the sections of sericulture industry, viz. mulberry cultivation, silkworm seed production, silkworm rearing, reeling and weaving of silk and collection of byproducts and its processing provide a large scale employment and periodic returns all round the year, thus improving the socio-

¹ Assistant Professor, PG Department of Zoology, Sadakathullah Appa College (Autonomous), Tirunelveli - 627 011, Tamil Nadu, India. (Affiliated to Manonmaniam Sundaranar University, Tirunelveli - 627 012)

² Assistant Professor, Department of Zoology, Sadakathullah Appa College (Autonomous), Tirunelveli - 627 011, Tamil Nadu, India. (Affiliated to Manonmaniam Sundaranar University, Tirunelveli - 627 012)

Sl. No	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN
360	Studies on Nutritional effect of <i>Arthrospira platensis</i> and <i>Saccharomyces cerevisiae</i> supplementation with silver nanoparticles on growth and economic traits of Silkworm, <i>Bombyx mori</i> L.	Dr. J. Shifa Vanmathi	Zoology	Journal of Entomological Research	Jan 2020	0974-4576

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Year : 2020, Volume : 44, Issue : 4
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Print ISSN : 0378-0519, Online ISSN : 0974-4576.
Article DOI : [10.5958/0974-4576.2020.00100.0](https://doi.org/10.5958/0974-4576.2020.00100.0) (<http://dx.doi.org/10.5958/0974-4576.2020.00100.0>)

Studies on nutritional effects of *Arthrospira platensis* and *Saccharomyces cerevisiae* supplementation with silver nanoparticles on growth and economic traits of Silkworm, *Bombyx mori* L.

Vannathi J. Shifa, Jamsia M. Sini

Department of Zoology, Sadakathullah Appa College (Autonomous), Rahmath Nagar, Tirunelveli - 627011, Affiliated to Manonmaniam Sundaranar University, Tirunelveli, Tamil Nadu, India

Corresponding Author: drshifa@gmail.com

Abstract

In the present study, the growth rate of larvae and cocoon of silkworm *Bombyx mori* fed with silver nanoparticles (AgNps) treated MR2 mulberry leaves was studied. The different concentrations (10, 20 and 30%) of prepared silver nanoparticles were given to the larvae. The Average cocoon weight was found highest in 30% concentration T3 and (0.423 ± 0.012 g) and T6 (0.583 ± 0.051 g) over the control (0.316 ± 0.041 g) respectively. The pupal weight of *B. mori* was found to be highest with 30% AgNps treatment of *Arthrospira platensis* and *Saccharomyces cerevisiae* were T3 (0.213 ± 0.026 g) and T6 (0.353 ± 0.083 g) compared to control (0.16 ± 0.016). The AgNps treated larvae showed maximum shell weight in T3 (0.753 ± 0.29 g) and T6 (0.843 ± 0.37 g), fibroin content in T3 (82.099%) and T6 (83.44%) and sericin content in T3 (17.90%) and T6 (916.55%) was observed and provides a good reliability. The treatments T3 (777 ± 103.9434 m), and T6 (766.666 ± 51.096 m) showed maximum filament length as compared to control. The influence of mulberry leaves enriched with Ag Nps of spirulina and yeast exhibited their highest single silk filament weight, T3 (0.21 ± 0.029 g) and T6 (0.23 ± 0.0374 g) respectively, when compared to control (0.15666 ± 0.0262 g).

Keywords

AgNps treatment, *Arthrospira platensis*, *Bombyx mori*, Economic traits, Larval growth, *Saccharomyces cerevisiae*, Silk parameters.

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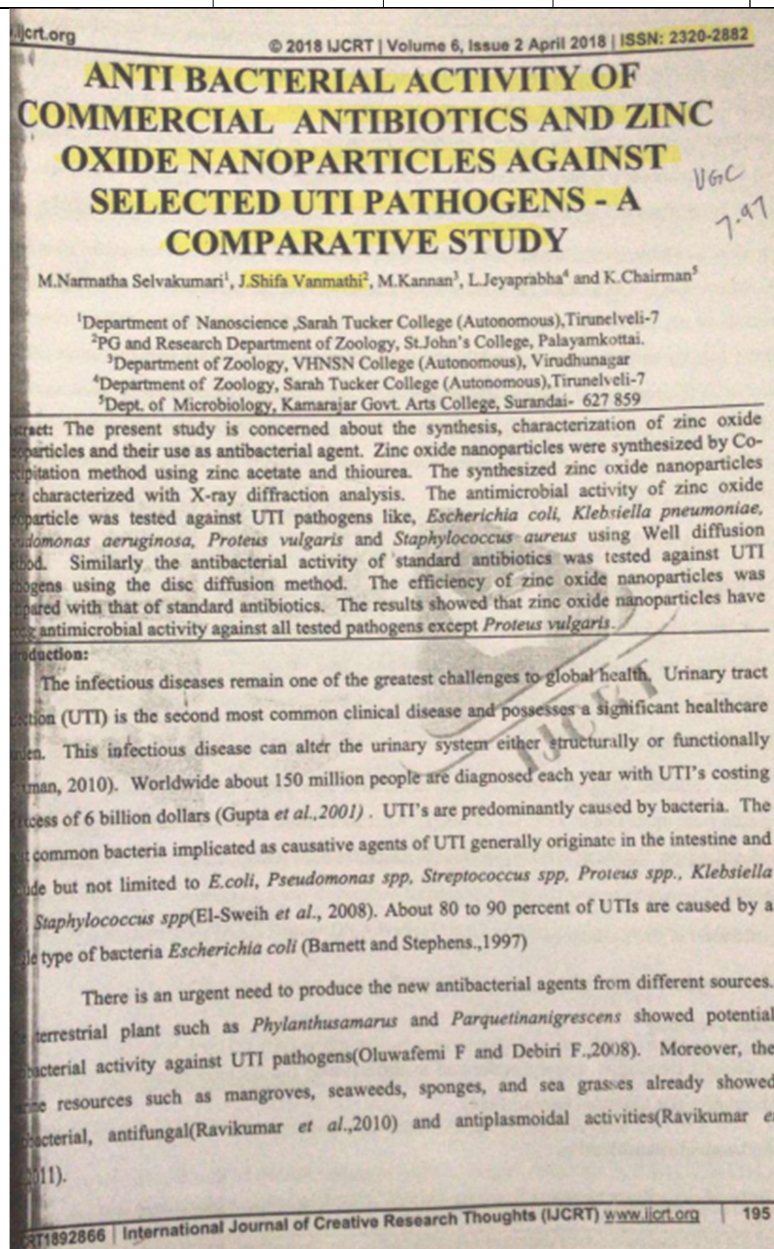
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Effect of Honey (*Apis dorsata* [Hymenoptera: Apidae]) on Larval Growth and Silk Cocoon Yield of *Bombyx mori* (Lepidoptera: Bombycidae)
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Use of *Morus alba*-*Bombyx mori* as a Useful Template to Assess Pb Entrance in the Food Chain From Wastewater
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Effects of Applaud on the Growth of Silkworm (Lepidoptera: Bombycidae)
Vassarmidaki, Maria E. et al., Journal of Economic Entomology
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<http://trendmd.com> | Journal Entomology (Jor) | ISSN: 0378-0519 | ISSN: 0974-4576 | info@trendmd.com

Sl. No	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN
361	Antibacterial Activity of Commercial Antibiotics and Zinc Oxide Nanoparticles against selected Uti-athogens	Dr. J. Shifa Vanmathi	Zoology	International journal of creative research thoughts	Apr 2018	2320-2882



Sl. No	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN
362	Phytochemical Analysis of <i>Lepidium Sativum</i> linn using UV-VIS and GC-MS Analysis	Dr. J. Shifa Vanmathi	Zoology	International journal of advanced research	July 2018	2320-5407

ISSN: 2320-5407

Int. J. Adv. Res. 6(9), 813-825



RESEARCH ARTICLE

PHYTOCHEMICAL ANALYSIS OF *LEPIDIUM SATIVUM* USING UV-VIS AND GC-MS.

Jency Malar ,M.S.¹, J. Shifa Vanmathi² and K.Chairman³.

1. Research scholar, Department of Zoology, Manonmaniam Sundaranar University, Abishekapatti.
2. Guest faculty, PG and Research Department of Zoology, St.John's College, Palayamkottai, Tirunelveli, Manonmaniam Sundaranar University, Abishekapatti.
3. Guest faculty, UG and PG Department of Microbiology, Kamarajar Govt. Arts College, Surandai, Manonmaniam Sundaranar University, Abishekapatti.

Manuscript Info

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Keywords:-

Lepidium sativum, UV-VIS and GC-MS, Phytochemical compounds.

Abstract

The present study was carried out to characterize the bioactive constituents present in seed and whole plant extracts of *Lepidium sativum* using UV-VIS and GC-MS. The crude extracts were scanned in the wavelength ranging from 200 to 800 nm by using Perkin Elmer spectrophotometer and the characteristic peaks were detected. For GC-MS analysis about 25g of powdered plant material was uniformly packed into a thimble and extracted with 150ml of ethanol as solvent using this plant extract was prepared. Helium gas (99.999%) was used as the carrier gas at constant flow rate 1ml/min and an injection volume of 2µl was employed (split ratio of 10:1); Injector temperature 80°C; Ion-source temperature 250°C. The oven temperature was programmed from 110°C (isothermal for 2 min.), with an increase of 10°C/min, to 200°C, then 5°C/min to 250°C, ending with a 9min isothermal at 280°C. Mass spectra were taken at 70 eV; a scan interval of 0.5seconds and fragments from 45 to 450 Da. The UV-VIS profile showed different peaks ranging from 280 and 290 nm with absorbance values of 0.26 and 3.98 respectively. The spectra for phenolic compounds (tannins) and flavonoids typically lie in the range of 230-290 nm. The results of the GC-MS analysis provide different peaks determining the presence of 28 phytochemical compounds in seed extract and the major phyto constituents were (Peak area 16.23%), *o*-ethyl S-2-Dimethylaminoethyl Ethylphos, (14.37%) Oleoyl chloride and (12.50%) *cis*-9-Hexadecenal (8.97%). Phytochemical compounds present in whole plant extract was 79 and the major phyto constituents were Eugenol (7.69 %); Hexadecanoic Acid, Ethyl Ester (7.50%) and Stigmast-5-EN-3-OL, (3.BETA.)- (7.14 %) were reported by GC-MS analysis. The results revealed the major compounds are fatty acid esters and alkaloids which showed antioxidant, antimicrobial and anticancer activities.

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Corresponding Author:- Jency Malar.

Address:- Research scholar, Department of Zoology, Manonmaniam Sundaranar University, Abishekapatti.

Sl. No	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN
363	Evaluation of different agricultural wastes on biological efficiency of <i>pleurotus ostreatus</i>	Dr. J. Shifa Vanmathi	Zoology	Journal of Emerging Technologies and Innovative Research (JETIR)	Mar 2020	2349-5162

EVALUATION OF DIFFERENT AGRICULTURAL WASTES ON BIOLOGICAL EFFICIENCY OF *PLEUROTUS OSTREATUS*

AUTHOR

Dr. Shifa Vanmathi . J¹ Assistant professor, PG Department of Zoology, Sadakathullah Appa College, Affiliated to Manonmaniam Sundaranr University, Tirunelveli-11. Tamilnadu, India.

Dr.V.Lakshmi,² Assistant professor, PG Department of Zoology, Pasumpon muthuramalinga thevar college, Melaneelithanallur, Tirunelveli, Tamilnadu.

Abstract

The Present study was conducted in mushroom house to determine the effect of different substrates like saw dust, paddy straw and sugarcane bagasse on growth and production of *Pleurotus ostreatus* (oyster mushroom). Initially, the stalk length and pileus diameter of oyster mushroom was recorded . Among the three treatments, the maximum stalk length (6.87 ± 2.10) and pileus diameter (6.41 ± 0.60) was observed in paddy straw treatment followed by saw dust (4.40 ± 0.05) (5.50 ± 0.06) and sugarcane bagasse (3.14 ± 0.77), (4.48 ± 1.41). Mycelium running took less time i.e. 11 days on paddy straw as compared to sugarcane bagasse (12.33) and saw dust (15.33). The appearance of pinhead and their maturity also took less time i.e. 17 days and 22 days, respectively on paddy straw and sugarcane bagasse. The maximum number of fruiting bodies were observed in paddy straw treatment (12.33) and saw dust treatment (10.66). The highest yield was recorded on paddy straw (41.66 \pm 17.55) followed by sugarcane bagasse (32.1 \pm 16.70) and saw dust (19.24 \pm 11.13) treatment. Among the three different substrates tested, paddy straw substrate was recorded in better growth and yield of *Pleurotus ostreatus*.

Keywords: Substrates; growth; production; mycelium running, *Pleurotus ostreatus* .

1. Introduction:

Mushroom is a special type of edible forming flesh umbrella like fruiting bodies. It is a human diet and considered a highly nutritive food delicacy in most parts of the world. (Sanchez, 2010) reported that *P.ostreatus* is the second most cultivated edible mushroom worldwide after *Agaricus bisporus* which constitute about 25% of total world production of cultivated mushrooms. Compost of wheat and paddy straw, banana leaves, sugarcane bagasses,wheat barn, rich husk, saw dust etc can be used as substrate for growing mushroom (Gupta, 1986).

Mushrooms are a rich source of carbohydrates, proteins, vitamins, and minerals (Ananbeh, 2003). Mushrooms grow on decayed organic matters rich in lignin, cellulose, and other complicated carbohydrates. *P. ostreatus* is an easily cultivable mushroom that colonizes various crop residues as substrates. *Pleurotus* spp. are able to degrade and convert lignocellulosic compounds into protein-rich biomass (Mamiro and Mamiro, 2011), and help in managing agro-wastes whose disposal has become a problem (Das and Mukherjee, 2007).

Sl. No	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN
364	Impact of Silver Nanoparticles of <i>Vigna Unguiculata</i> and <i>Macrotyloma Uniflorum</i> on Growth and Economic Traits of Silkworm <i>Bombyx Mori</i> , L	Dr. J. Shifa Vanmathi	Zoology	Sadakath: A Research Bulletin	Jan 2020	2347-7644

Impact of Silver Nanoparticles of *Vigna Unguiculata* and *Macrotyloma Uniflorum* on Growth and Economic Traits of Silkworm *Bombyx Mori*, L.

Dr. Shifa Vanmathi, J.¹, Dr. Sithi Jameela, M.², Ajintha, K.³ and Vanesh, M.⁴

Abstract

The Dietary supplementation of *Vigna unguiculata* and *Macrotyloma uniflorum* with silver nanoparticles were tested against IIIrd, IVth and Vth instar larvae of silkworm for improving the performance of growth and cocoon characters of silkworm, *Bombyx mori* L. The various concentration of silver nanoparticles of 10%, 20% and 30% were administered to IIIrd, IVth and Vth instars silkworm with mulberry. 30% concentration (T3 and T6) of *V. unguiculata* and *M. uniflorum* was found reflected into significant improvement in the weight of economic parameters cocoon weight ($1.59 \pm 0.05g$, $1.47 \pm 0.004g$), shell weight (0.843 ± 0.03 , $0.80 \pm 0.02g$); pupal weight (0.77 ± 0.02 , $0.73 \pm 0.08g$) and cocoon shell ratio (56.68%, 54.75%) of silkworm, *Bombyx mori* (L). The mean larval weights (T3 $65.04 \pm 5.41g$, T6 $60.8 \pm 4.26g$) and the relative growth rate of final instar larva of *Bombyx mori* were also increased. In the present study, the silver nanoparticles treatment has growth promoting effect in silkworm which helps to improve the performance of silk in *Bombyx mori*, L.

Keywords: Silkworm, *Bombyx mori*, L. *Vigna unguiculata* and *Macrotyloma uniflorum* and Ag nanoparticles.

Introduction:

Sericulture is an agro based popular cottage industry and it plays a vital role in the improvement of rural economy of India. India is the second largest silk producer in the world after China. Increase larval growth and cocoon quality and quantity would result better economics for this industry and meet the production needs. In the recent years, many attempts have been made to improve the quality and quantity of silk through

1 Assistant Professor, PG Department of Zoology, Sadakathullah Appa College (Autonomous), Tirunelveli - 627 011, Tamil Nadu, India. (Affiliated to Manonmaniam Sundaranar University, Tirunelveli - 627 012)

2 Associate Professor and Head, Department of Zoology, Sadakathullah Appa College (Autonomous), Tirunelveli 627 011, Tamil Nadu, India. (Affiliated to Manonmaniam Sundaranar University, Tirunelveli - 627 012)

3 Research Scholar, Research Department of Zoology, Sadakathullah Appa College (Autonomous), Tirunelveli 627 011, Tamil Nadu, India. (Affiliated to Manonmaniam Sundaranar University, Tirunelveli - 627 012)

4 Research Scholar, Research Department of Zoology, Sadakathullah Appa College (Autonomous), Tirunelveli 627 011, Tamil Nadu, India. (Affiliated to Manonmaniam Sundaranar University, Tirunelveli - 627 012)

Sl. No	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN
365	Invitro selection of phosphate solubilizing Bacteria and their Role in plant Growth promotion	Dr.R.Ajaz Haja Mohideen	Zoology	IJCRD	Jan 2017	2456-3137

International Journal of Computational Research and Development (IJCRD)
Impact Factor: 4.775, ISSN (Online): 2456 - 3137
(www.ijcrd.com) Volume 2, Issue 1, 2017

INVITRO SELECTION OF PHOSPHATE SOLUBILIZING BACTERIA AND THEIR ROLE IN PLANT GROWTH PROMOTION

C. Gnana Sankar*, R. Ajaz Haja Mohideen, K. R. Narayanan* & A. G. Murugesan*****

* Department of Zoology, Sri Paramakalyani College, Alwarthurichi, Tamilnadu
** Department of Zoology, Sadakathullah Appa College, Rahmath Nagar, Tirunelveli
*** Professor and Head, SPK Centre of Excellence in Environmental Science, Manonmaniam Sundaranar University, Alwarthurichi, Tamilnadu

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Abstract
Phosphate solubilizing bacteria (PSB) are known to be able to solubilize different forms of inorganic phosphates. A total of twenty four phosphate Solubilizing bacterial colonies were isolated on the Pikovskaya's (PKV) agar medium, containing insoluble tri-calcium phosphate (TCP), from different pond water sediment sample in and around Tirunelveli district, Tamil Nadu, India. The colonies showing clear halo zones around the bacterial growth were considered as phosphate solubilizers. Out of 24 bacterial isolates, 6 isolates showing highest phosphate solubilisation index (SI) ranged from 1.6-2.5 were selected for the further study as qualitative as well as quantitative estimation of phosphate. Among these 6 potent isolates, *Bacillus* sp PSB6 showed the maximum phosphate solubilization index of 2.5 in Pikovskaya's agar plates. A pot culture experiment was conducted to investigate the effects of isolated PSB on early development of plants. Seeds were treated with bacterial strain, and seedlings were harvested 5 weeks after inoculation. Pots treated with strains showed a positive effect on plant growth. A significant increment in plant shoot, Root height (21.49, 08.64 cm) and dry weight of Shoot and Root (2.39, 2.21 cm) were determined in plants treated with *Bacillus licheniformis* (PSB6) has remarkably increased compared to the uninoculated control. This growth promoting action was confirmed by the molecular analysis of genomic DNA by RFLP technique.

Key Word: PSB, *Bacillus licheniformis*, Pot Study & RFLP

Introduction:

India is primarily an agriculture based country with more than 60-70 percent of its population dependent on agriculture. India's fast growing population is projected to cross 1.3 billion by 2020 (Kaneekar *et al.*, 2004). Feeding and clothing this population from almost exhausted arable land and fast depleting water resources would be a great concern and challenge. A tremendous pressure is, thus, exerted on the annual food grain production and minimizing crop losses. In recent years, plant protection has become one of the essential inputs in crop production. In the context of changing cropping patterns, introduction of high yielding varieties, application of high doses of fertilizers, with enhanced irrigation facilities, pests have assumed a special significance and more and more pesticides are being applied. Phosphorus (P) is one of the major essential macronutrients for plants and is applied to soil in the form of phosphatic fertilizers. However, a large portion of soluble inorganic phosphate applied to the soil as chemical fertilizer is immobilized rapidly and becomes unavailable to plants (Hu *et al.*, 2006).

An estimate reviewed that 5.7 billions of hectares worldwide contain too little of available phosphorus for crop production (Barje, 1997; Gijbers, 2001). Analysis of 3.65 million samples of Indian soils showed that 42 percent of soil falls in low level of phosphate (Muginova, 2007). Certain beneficial bacteria can remobilize the insoluble phosphate into soluble form through various mechanisms. These phosphate solubilizing bacteria (PSB) play an important role for sustaining the level of plant utilizable soluble phosphate in the soil in an environmental friendly and sustainable manner. PSBs are autochthonous and their population is not sufficient to compete with other soil bacteria. Therefore, application of these PSB as bioinoculants in agricultural practice is expected to improve crop yield and productivity. (Gupta, *et al.*, 2009; Kostadinova, S., and Marbova, M. (2008).

In the present study, we described the isolation and characterization of PSB6 (*Bacillus licheniformis*) and its plant growth promotion activity were screened in the presence and absence of supplemented tricalcium phosphate in the soil.

2. Material and Methods:

2.1 Isolation and Identification of Phosphate Solubilizing Bacteria:

Pond sediment sample was suspended in 100 mM phosphate buffered saline solutions and were shaken for 6 h on a rotary shaker. Serially diluted samples were plated on nutrient agar (HiMedia, Mumbai). After 24 h incubation individual colonies were screened for their ability to solubilize inorganic phosphate by spotting the inoculum on Pikovskaya's (PVK) agar. The sizes of the phosphate solubilization by means of clear zone around the colonies were measured at 28°C after 7 days of incubation. Colonies with clear zones around them were confirmed as phosphate solubilizing bacteria (PSB) and further it maintained in nutrient agar slants. Selected

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Principal
PRINCIPAL
SADAKATHULLAH APPA COLLEGE
Rahmath Nagar, TIRUNELVELI - 627 011.