

STUDENT STUDY PROJECT

On

DIVERSITY OF OCIMUM

INVESTIGATORS

1. M. Poojitha
2. I. Padma
3. P. Priyanka.
4. G. KHADARJABU
5. p. Suresh

Guided By

D. RAJASEKHAR

DEPARTMENT OF BOTANY
KRK GOVT. DEGREE COLLEGE
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PRAKASAM DT






KRK GOVERNMENT DEGREE COLLEGE, ADDANKI, PRAKASAM DT


PROJECT WORK COMPLETION CERTIFICATE

Title of the Project: Campus Plant Diversity
Program and Course: I BSc, BZC
Duration: 05.06.2023 – 05.07.2023

This is to certify that the following students of KRK Government Degree College, Addanki, PrakasamDt, have completed the project entitled Campus Plant Diversity for the academic year 2022-2023, in the department of Botany under the supervision of Sri D. Rajasekhar, Lecturer in Botany from dt 06.06.2022 – 06.07.2022.

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2	Y223001002	Gade. KhaderBabu
3	Y223001003	Inkollu. Padma
4	Y223001004	
5	Y223001005	Medikonda. Poojitha
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ACKNOWLEDGEMENTS

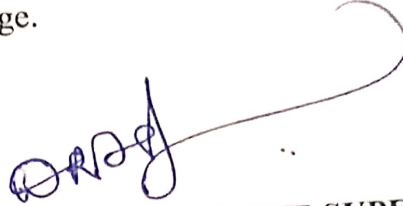
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INVESTIGATORS

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DECLARATION

This is the bonafide work done by the below mentioned investigators under my supervision.
NoPart of this work is copied to the best of my knowledge.



SIGNATURE OF THE SUPERVISOR

CONTENT

1. INTRODUCTION
2. NEED OF THE STUDY
3. METHODOLOGY
4. DETAILS OF THE WORK
5. SUMMARY



INTRODUCTION

Nature has bestowed on us a very rich botanical wealth. Plants are the richest resource of drugs molecules for modern medicines, nutraceuticals, traditional medicine and even chemical entities for synthetic drugs. *Ocimum* species (Tulasi) is a well-known medicinal plant which has used in the six Indian systems of medicine from ancient times. The latest review on the *Ocimum* species revealed that the species holds a very good antiviral activity. As *Ocimum* species are with good medicinal properties, many Indian families rear and devout *Ocimum* plant by placing it in different places of their houses, especially in front yard or backyard.

But a very few people know the diversity of *Ocimum* species and each species has different medicinal properties. ***Ocimum*** is a genus of aromatic annual and perennial herbs and shrubs in the family Lamiaceae, native to the tropical and warm temperate regions of all 6 inhabited continents, with the greatest number of species in Africa. It is the genus of basil and the name is from the Ancient Greek word for basil. Basil is an annual, or sometimes perennial, herb used for its leaves. Depending on the variety, plants can reach heights of between 30 and 150 cm (1 and 5 ft). Its leaves are richly green and ovate, but otherwise come in a wide variety of sizes and shapes depending on cultivar. Leaf sizes range from 3 to 11 cm (1 to 4+ $\frac{1}{2}$ in) long, and between 1 and 6 cm ($\frac{1}{2}$ and 2 $\frac{1}{2}$ in) wide. Basil grows a thick, central taproot. Its flowers are small and white, and grow from a central inflorescence, or spike, that emerges from the central stem atop the plant. Unusual among Lamiaceae, the four stamens and the pistil are not pushed under the upper lip of the corolla, but lie over the inferior lip. After entomophilous pollination, the corolla falls off and four round achenes develop inside the bilabiate calyx. Basil is native to India and other tropical

regions stretching from Africa to South East Asia, but has now become globalized due to human cultivation.

NEED OF THE STUDY

All ocimum species are good medicinal plants. They have been used to cure different ailments. People grow them for their medicinal usage. Indians protect the species with utmost care and devotion. People often confuse of various species of ocimum. Even the people related to the subject are not an exemption. They grow one species in the place of species of interest. It causes lot of dissatisfaction in them. If everyone knows different species of Ocimum they can avoid this confusion and grow the species of interest.

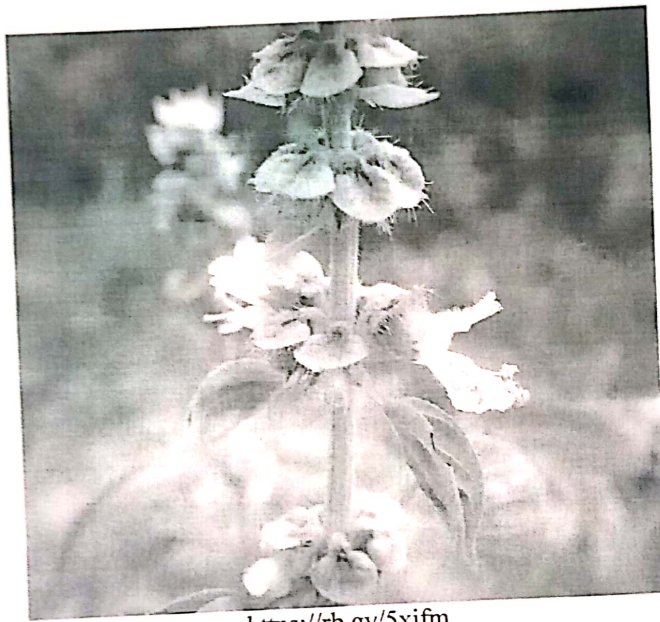
The present study intends to make known different important species of Ocimum, their morphology and medicinal properties to everyone. Conservation of all these species is everyone's responsibility. Through this study it would be possible.

METHOD OF STUDY

Using survey method, internet sources, library books and by consulting the subject experts information would be collected.

1. *Ocimum basilicum*

Kingdom: Plantae
Order: Lamiales
Family: Lamiaceae
Genus: *Ocimum*
Species: *americanum*



<https://rb.gy/5xjfm>

Facts

Originating in tropical Asia, sweet basil is the classic culinary herb of Mediterranean and Southeast Asian cuisines. Many cultivars exist, selected for fragrance, flavor, color and size. Widely cultivated commercially and in kitchen gardens, sweet basil may occasionally escape, though it is likely ephemeral near sites of cultivation.

Habitat

Anthropogenic (man-made or disturbed habitats), meadows and fields

Characteristics

Habitat

terrestrial

SUMMARY

The present study has dealt with various *Ocimum* species that are commonly seen in India. *Ocimum* genus belongs to the family Lamiaceae, a popular herb with infinite medicinal properties. Since ages it has been used by the world population especially Indian for curing different ailments. *Ocimum sanctum* or *tenuiflorum*, popularly known as holy basil is worshipped as goddess by many hindus in the country. It is thought to be very auspicious to devotion the herb planting in the frontyard. Different species of the genus have different chemical compounds and different medical properties as well. The problem lies with the identification of correct species as all the specieses are almost similar except a few characters. The present study aimed at morphology and economic importance of 8 important and prominent species of *Ocimum*. The information is certainly helpful to the people in recognizing the correct species.

FURTHER SUGGESTIONS

1. In the present study only 8 species of *Ocimum* have been covered there are still many species left to be studied.
2. Focus on other native plants, which have many species and diverse medicinal properties.
3. There are different ornamental plants, grow in our surroundings. The floral medicinal properties of them can be explored, as floral therapy is on high demand.

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KRK GOVERNMENT DEGREE COLLEGE, ADDANKI, PRAKASAM DISTRICT
DEPARTMENT OF BOTANY
2024 - 2025



ORGANIC REPELLENTS FOR CONTROLLING COCKROACHES

NAME OF THE STUDENT: IL B.Sc (BZC) students
COURSE: B.Sc (BZC)
CLASS: II year
ROLL NO: 4223001002, 003, 005, 006 & 007
TOPIC: organic repellents for controlling cockroaches
DATE OF SUBMISSION: 30.04.2024.

STUDENT STUDY PROJECT

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PROJECT WORK COMPLETION CERTIFICATE

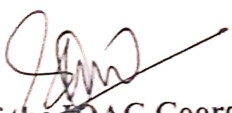
Title of the Project: Organic repellents for controlling cockroaches


Program and Course: *II B.Sc C.B.Z.C*

Duration:

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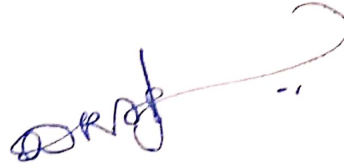
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DECLARATION

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A handwritten signature in blue ink, consisting of stylized initials and a long horizontal stroke with a hook at the end.

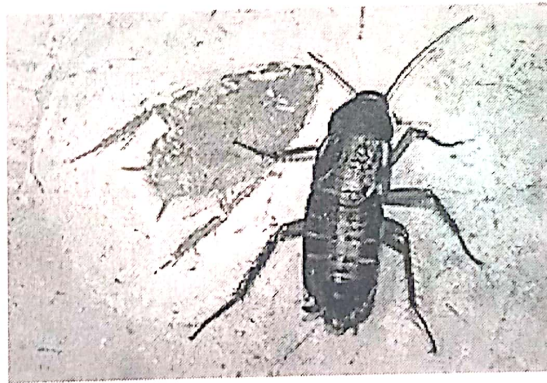
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2. NEED OF THE STUDY
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Introduction

Cockroaches are insects belonging to the order Blattodea (Blattaria). About 30 cockroach species out of 4,600 are associated with human habitats. Some species are well-known pests. The cockroaches are an ancient group, with their ancestors, known as "roachoids", originating during the Carboniferous period, some 320 million years ago. Those early ancestors, however, lacked the internal ovipositors of modern roaches. Cockroaches have chewing mouthparts and are probably among the most primitive of living Neopteran insects. They are common and hardy insects capable of tolerating a wide range of climates, from Arctic cold to tropical heat. Tropical cockroaches are often much larger than temperate species. Modern cockroaches are not considered to be a monophyletic group, as it has been found based on genetics that termites are deeply nested within the group, with some groups of cockroaches more closely related to termites than they are to other cockroaches, thus rendering Blattaria paraphyletic. Both cockroaches and termites are included into Blattodea. Cockroaches have appeared in human culture since classical antiquity. They are popularly depicted as large, dirty pests, although the majority of species are small and inoffensive and live in a wide range of habitats around the world.



The name "cockroach" comes from the Spanish word for cockroach. The scientific name derives from the Latin *blatta*, "an insect that shuns the light", which in classical Latin was applied not only to cockroaches, but also to mantids. The earliest cockroach-like fossils are from the Carboniferous period 320 million years ago. Fossil roachoids are considered the common ancestor of both mantises and modern cockroaches, and are distinguished from the latter by the presence of a long external ovipositor. As the body, hind wings and mouthparts are not preserved in fossils frequently, the relationship of these roachoids and modern cockroaches remains disputed. The first fossils of modern cockroaches with internal ovipositors appeared in the early Cretaceous. Recent phylogenetic analysis suggests that cockroaches arose by the Jurassic. Cockroaches are

abundant throughout the world and live in a wide range of environments, especially in the tropics and subtropics. Cockroaches can withstand extremely low temperatures, allowing them to live in the Arctic. Some species are capable of surviving temperatures of -122°C (-188°F) by manufacturing an antifreeze made out of glycerol. Only about four widespread species are commonly regarded as pests.

Cockroaches occupy a wide range of habitats. Many live in leaf litter, among the stems of matted vegetation, in rotting wood, in holes in stumps, in cavities under bark, under log piles and among debris. Some live in arid regions and have developed mechanisms to survive without access to water sources. Others are aquatic, living near the surface of water bodies, including bromeliad phytotelmata, and diving to forage for food. Most of these respire by piercing the water surface with the tip of the abdomen which acts as a snorkel, but some carry a bubble of air under their thoracic shield when they submerge. Others live in the forest canopy where they may be one of the main types of invertebrate present. Here they may hide during the day in crevices, among dead leaves, in bird and insect nests or among epiphytes, emerging at night to feed.

Cockroaches are social insects; a large number of species are either gregarious or inclined to aggregate, and a slightly smaller number exhibit parental care. It used to be thought that cockroaches aggregated because they were reacting to environmental cues, but it is now believed that pheromones are involved in these behaviors. Some species secrete these in their feces with gut microbial symbionts being involved, while others use glands located on their mandibles. Pheromones produced by the cuticle may enable cockroaches to distinguish between different populations of cockroach by odor. Other cockroaches follow such trails to discover sources of food and water, and where other cockroaches are hiding. Thus, cockroaches have emergent behavior, in which group or swarm behavior emerges from a simple set of individual interactions. Daily rhythms may also be regulated by a complex set of hormonal controls of which only a small subset have been understood. Pest species adapt readily to a variety of environments, but prefer warm conditions found within buildings. Many tropical species prefer even warmer environments. Cockroaches are mainly nocturnal and run away when exposed to light. An exception to this is the Asian cockroach, which flies mostly at night but is attracted to brightly lit surfaces and pale colors.

The Blattodea include some thirty species of cockroaches associated with humans; these species are atypical of the thousands of species in the order. They feed on human and pet food and can leave an offensive odor. They can passively transport pathogenic microbes on their body surfaces, particularly in environments such as hospitals. Cockroaches are linked with allergic reactions in humans. One of the proteins that trigger allergic reactions is tropomyosin, which can cause cross-reactive allergy to dust mites and shrimp. These allergens are also linked with asthma. Some species of cockroach can live for up to a month without food, so just because no cockroaches are visible in a home does not mean that they are not there. Approximately 20–48% of homes with no visible sign of cockroaches have detectable cockroach allergens in dust. There are so many control measures which were proved efficient in controlling cockroaches, they are mainly of inorganic type hence hazardous to human lives also. The control measures must be controlling cockroaches but not harm the human health. There come into the existence the organic and natural agents which also have been proved very potent, but their usage is comparatively very less. This student project aims to disclose such herbal measures to the public and encourage their usage worldwide.

Need of the study

1. Cockroaches are global threat and deteriorate important household goods like edibles, gadgets, papers etc.
2. As they carry many harmful microorganisms on their body also mediate the spread of harmful ailments.
3. The practice of using harmful pesticides to control the pest population and have been proved non-ecofriendly.

Objectives

1. To control global and household pests by natural ways.
2. To bring the related knowledge under one roof.
3. To disseminate the knowledge to far and wide.
4. To orient the interest of people towards organic control.

Methodology

1. Survey method.
2. Browsing internet sources like online portals, e-journals, articles etc.
3. Library sources.

Details of the work

After the thorough consultation of the selected sources the following herbs were found very efficient in controlling the pest population.

1. Rosemary
2. Mint
3. Catnip
4. Chrysanthemum
5. Garlic
6. Orange
7. Bay leaves
8. Lemon grass
9. Cucumber
10. Lavender

1. Rosemary

Scientific Name: *Rosemarinus officinalis*

Family: Lamiaceae



Rosemary is an aromatic evergreen shrub with leaves similar to hemlock needles. It is native to the Mediterranean region, but is reasonably hardy in cool climates. It can withstand droughts, surviving a severe lack of water for lengthy periods. It is considered a potentially invasive species and its seeds are often difficult to start, with a low germination rate and relatively slow growth, but the plant can live as long as 35 years. Forms range from upright to trailing and upright forms can reach between 4-6 feet tall. The leaves are evergreen, 2-4 cm ($\frac{3}{4}$ -1+ $\frac{1}{2}$ in) long and 2-5 mm ($\frac{1}{16}$ - $\frac{3}{16}$ in) broad, green above, and white below, with dense, short, woolly hair. The plant flowers in spring and summer in temperate climates, but the plants can be in constant bloom in warm climates; flowers are white, pink, purple or deep blue. The branches are dotted with groups of 2 to 3 flowers down its length. Rosemary also has a tendency to flower outside its normal flowering season; it has been known to flower as late as early December, and as early as mid-February.

Rosemary is an everlasting plant of North America. In addition to giving your food a taste, rosemary is the best cockroach repellent. It has grayish-green leaves and blue flowers. Cockroaches are used to avoid it due to its pine-like smell. Additionally, rosemary has significant ingredients that make it a potent oil that aids in keeping cockroaches away from the rosemary region. As cockroaches have a strong sense of smell, the rosemary scent makes them

cornstarch or talcum powder, 1/2 tsp boric acid, and 10 drops of lavender oil. Add it to a large bowl and stir until cornstarch is completely dissolved. Pour the mixture into a shallow dish and then place it where roaches are usually found. Place a few drops of lavender oil on a cotton ball and place it on walls, cabinets, baseboards, and other hanging surfaces. You can also add 1 drop of oil to the hole of each roach to prevent their return.

SUMMARY

Cockroaches are household pests found everywhere in the house, not just spoiling the goods but also carry harmful microorganisms which cause harmful diseases. There are different potent inorganic pesticides available in the market which can effectively control the pests, they are also harmful to the non-target useful organisms and environment. Cockroach populations must be controlled but in an ecofriendly way. Thus come into the scene the organic and environment friendly herbs. The 10 different herbs and their potency in controlling the pests has been discussed. They can be administered in a befitting way and control the cockroaches and the use of organic pest control methods must be popularized in the society to save the environment from the chemical pollution.

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With a moment's reflection, I found that I had been thinking of the same thing for some time.

It was a very simple thing, but it was a thing that I had been thinking of for some time.

And I had been thinking of it for some time.

And I had been thinking of it for some time.

And I had been thinking of it for some time.

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KRK GOVERNMENT DEGREE COLLEGE, ADDANKI, PRAKASAM
DISTRICT
DEPARTMENT OF BOTANY
2023 -2024



STUDENT PROJECT

SEED DIVERSITY

(1 August 2023 - 1st Sep 2023)

Details of the students

II and II B Sc students

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INTRODUCTION

Every creature is created with unique features and values. All the plants and animals have been created in the same way. They were created even before the human beings to serve the nature and make man's life happy, who was created later. As these elder organisms made this earth useful man is enjoying his life. The real property that has been given to us is the rich biodiversity. This is our duty to protect this property and make our lives happy. But instead with over greediness we have been become the main reason for their extinction. That is why the organism presented in our fore father time have not been found in our times. Similarly the species which are present with us may not be seen by our young generations. This is high time to conserve the valuable biodiversity. With this intension this project was taken up to collect various seeds and to prepare the botanical and economic importance of them. Students involve in the project develop respect of the nature and do their role perfectly in protecting the biodiversity.

NEED OF THE STUDY

1. To maintain seed biodiversity.
2. To develop the habit of seed preservation.
3. To extend the knowledge to others.
4. To quick passage of the information.

METHODOLOGY

To get the botanical and economical details of the seeds various books, knowledge of the supervisors and open educational resources were used.

List of Seeds

- i) Cereals
 - 1. White Rice
 - 2. Black Rice
 - 3. Red Rice
 - 4. Oats
 - 5. Barley
 - 6. White Maize
 - 7. Yellow Maize
- ii) Fine Millets
 - 1. Korralu
 - 2. AnduKorralu
 - 3. Samulu
 - 4. Vudalu
 - 5. Arikelu
 - 6. Quinoa
- iii) Millets
 - 1. White Jowar
 - 2. Yellow jowar
 - 3. Red Jowar
 - 4. Sajjalalu
 - 5. Ragulu
- iv) Protein Rich Seeds (pulses)
 - 1. Red Gram
 - 2. Black Gram
 - 3. Green Gram
 - 4. Green Gram Black Variety
 - 5. Pigeon Pea (senagalu)
 - 6. Pigeon Pea (Big)
 - 7. Vulavalu
 - 8. Ground nut
 - 9. Sunflower

10. Gummadi
 11. Alasandalu
 12. Rajma beans
- v) Seeds of Fruit yielding Plants
1. Grapes
 2. Apple
 3. Mango
 4. Sapota
 5. Custard apple
 6. Dragon fruit
 7. Water melon
 8. Orange – Kamala
 9. Orange – Narinja
 10. Orange – Battayi
 11. Kajoor
 12. Ziziphus
- vi) Seeds of Flowering Plants
1. Kanakambaram
- vii) Seeds of vegetable plants
1. Ladys finger
 2. Chillies
 3. Bitter gourd
 4. Bottle gourd
 5. Gongura
 6. Totakura
 7. Palakura
- viii) Seeds of Condiments and spice yielding plants
1. Elachi
 2. Piper nigrum
 3. Menthulu
 4. Jilakarra
- viii) Seeds of Medicinal Plants
1. Maha Beera

- 2. Chia
- 3. Cicca acida
- ix) Seeds of Oil Yielding Plants
 - 1. Castor
 - 2. Avalu

Rice

Botanical Name: *Oryza sativa*

Common Name : Paddy, Rice

Family: Poaceae/ Graminae

Economic importance:

1. Rich in Carbohydrates
2. Aleurone layer contain proteins
3. Rice Bran oil is obtained from the husk
4. Staple food for Indians and Chinese



KRK GOVERNMENT DEGREE COLLEGE, ADDANKI, BAPATLA DT
DEPARTMENT OF BOTANY

SEED EXPO – 2023

QR CODES

1. *Oryza sativum*



2. *Oryza punctata*



3. *Oryza sativa*. L indica



4. *Avena sativum*



5. *Hordeum vulgare*



58. *Cicca acida*



59. *Brachiaria ramosa*



60. *Echinochloa esculenta*



SUMMARY

Man's life was made happy and comfortable by the pre created plants and animals. Inturn man should protect this property with his wiseness. But with over greediness man is spoiling his own niche and fellow organisms. If this is continued man's life will become very miserable and this earth will become a graveyard. The present generations of unaware of biodiversitysignificance. To aware them the importance and to make them part in the biodiversity conservation this project was planned. As part of the work 60 seed varieties were collected, the information of botanical and economic importance was collected and created QR codes.

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