

**PREPARATION OF TREE DATABASE OF SIR SYED COLLEGE,
TALIPARAMBA**

BY

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DISSERTATION

**Submitted to the Kannur University in partial fulfilment of the
requirements for the degree of**

Bachelor of Science

In

Forestry



DEPARTMENT OF FORESTRY

SIRSYED COLLEGE

TALIPARAMBA-670142

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2022

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Certificate I

This is to certify that this project entitled **“PREPARATION OF TREE DATABASE OF SIR SYED COLLEGE, TALIPARAMBA”** submitted for the award of degree of B.Sc. Forestry of Kannur University, Kannur is a bonafide work carried out by AISWARYA N. K., ALEENA VARGHESE, ARYA K. V., NASEEBA M. P., VARSHA P. under my supervision and that it has not previously formed the basis for the award of any degree, diploma, fellowship or other similar title, of any other University or Society.

Karimbam

30-04-2022

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Certificate II

This is to certify that the project entitled **“PREPARATION OF TREE DATABASE OF SIR SYED COLLEGE, TALIPARAMBA”** submitted to Kannur University, Kannur in partial fulfilment of the requirements for the degree of B.Sc. Forestry has been approved.

External Examiner

Supervising guide

Head of the Department

DECLARATION

We, hereby declare that the project entitled **“PREPARATION OF TREE DATABASE OF SIR SYED COLLEGE, TALIPARAMBA”** is a record of project work done by us and that this project has not previously formed the basis for the award of any degree, diploma, fellowship or other similar title, of any other University or Society.

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CONTENTS

| CHAPTER | TITLE | PAGES |
|---------|---------------------------|---------|
| 1 | INTRODUCTION | 8 |
| 2 | REVIEW OF LITERATURE | 9 - 13 |
| 3 | MATERIALS AND METHODOLOGY | 14 - 15 |
| 4 | RESULTS AND DISCUSSION | 16 - 21 |
| 5 | CONCLUSION | 22 |
| 6 | SUMMARY | 23 |
| 7 | REFERENCES | 24 - 29 |

TABLE OF FIGURES

| | | |
|------------|---|-------|
| Table 1 | Checklist of trees of Sir Syed College Campus | 16 |
| Figure 1.1 | QR code for <i>Polyalthia longifolia</i> | 17 |
| Figure 1.2 | Scanned result of QR code | 18-20 |

ABSTRACT

The aim of this project was to prepare about the data base of the trees in Sir Syed College, Taliparamba. It includes other interesting activities like; learning the techniques of mapping, webpage development and QR coding. In the midst of technology driven global world, with the increase in the usage of smartphones, tablets etc. and the availability of these devices at a lower cost motivated us to adopt the method of QR code for obtaining detailed information about the trees available in the campus, by using the application of QR code which would tag around the trees, everyone can get information about every trees from the webpage created by us. QR codes will be created from the webpages and tagged around the trees. By this project, everyone can scan and learn about the trees in the campus. The webpage which opens from the QR code will show the information about the trees such as scientific name, common name, distribution, morphological features and uses. These QR codes may be very helpful for gaining knowledge about the trees. Getting information through the QR codes would save the time and efforts better than reading books.

INTRODUCTION

QR code is a type of matrix bar code or two dimensional code that can store data information and designed to be read by smartphones. QR stands for “Quick response” indicating that the code contents should be decoded very quickly at high speed. With the application of QR code which is tagged on trees in the campus one can get information about the trees. This is done through tree mapping, which means retrieving exact tree location and collecting tree information. With the collected information a web page is created. QR code were developed using these web page and tagged it on trees. QR code attracts the attention of people and also it may encourage them to understand the importance of the trees and to have knowledge about the morphology of different trees.

This quick response code (QR code) is similar to bar code and is unique for each tree. The QR codes can be scanned with any device equipped with QR code scanner that is a smart phone, iPhone, tablet etc. By scanning the QR code the information that was entered in the web page will appear on the screen. The information contains the common name of the tree it's scientific name, family, distribution, some peculiar characteristics, uses etc. This work is an effort to create a means to establish environmental sustainability through QR code tagging to trees. In this digital era, with increased usage of smartphones, tablets and the availability of these devices at a lower cost motivated us to adopt QR code tagging for obtaining detailed information about tree collection available in our college.

The objectives of this study are:

- To tag each tree in the campus with QR code
- To enable the students aware of all the facts and data about the trees from its scientific name to its medicinal and pharmaceutical potential along with other interesting information, by scanning the QR code put up on the tree using their smart phones.
- To help the students, faculty, and others to gain knowledge about the plants available in the college campus by the codes this can be easily accessed by anyone in the college.

REVIEW OF LITERATURE

Sir Syed College was established in 1967, which is located in a Laterite hillocks region under Taliparamba municipality. The area enjoys typical tropical climate and is rich in local flora and fauna. The major vegetation includes *Polyalthia longifolia*, *Tectona grandis*, *Acacia auriculiformis*, *Cassia fistula*, *Bridelia retusa*, *Syzygium cumini*, *Mangifera indica*, *Gmelina arborea*, *Pongamia pinnata*, *Anacardium occidentale*, *Terminalia arjuna*, *Alstonia scholaris* etc. It may be regenerated by natural or through planting. Study of biological environment is one of the important aspects in Environmental Impact Assessment in view of the need for conservation of Environmental quality. The visual observations of plants were recorded with a view to obtaining some idea about the relative density of certain species and their predominance. The importance of studying the local floral diversity of a region will give origin and the importance of flora for conservation, culture and economy, also get knowledge about the native and introduced species in that region. The importance of the survey is to provide information such as uses and importance of flora present in that region to the students and local people. Through several methods the collected information can be published. Mainly through publishing books, article based on the floral diversity and using checklist and also methods like Biodiversity register (BR).

Biodiversity register is a document which contains comprehensive information on locally available Bio-resources including landscape and demography of a particular area. Bioresources mean plants, animals and micro-organisms or parts thereof, their genetic material and by-products (excluding value added products) with actual or potential use or value. Its preparation requires survey and sampling, seasonal variation and species availability, Collection of specimen/photograph etc. . Another method is making checklist CD. The CD contains brief write-ups on location and phytogeography of the State including geology and soil, climate, characteristic features and typical species of vegetation types, important agricultural and horticultural crops. The correct name of the species with author citation and literature is followed by basionym and synonyms, is given. The habit, habitat, status, geographical distribution, district-wise distribution (map) and images of species are also included in the CD. There is search facility in the CD with family wise, genus-wise, habit-wise, habitat-wise, locality-wise and common name-wise quick search (KFRI -Flowering plants of Kerala - A checklist CD).

Vegetation mapping techniques and image generalization is another method;the sign method is used to map the location of special (rare, unique) plants. In the case where the relevant plant species do not form a continuous cover and the plants are scattered over a wide area, the habitat method is used to map the distribution of the species. The boundaries of the habitats are drawn in lines of different colors and structures, and inside them are drawn signs, reminiscent of a plant species, or the names of plant species are written. Using cartograms and habitat methods are mapped the number of plants, the number of their habitats sites, and the number of plant species or the covered area.

In the process of expansion in areas of communication and the improvement of possibilities in society, communication technologies and the new media constitute an important and effective medium. The potential of communication technologies and the new media characterized by digitalization, networking, globalization, mobility, convergence and interactivity facilitate social participation and interaction in the social dimension, provide storage facility in the time dimension, offer mobility and the possibility of global spread in the space dimension and offer an opportunity to benefit from multimedia in the sign dimension. The opportunities presented by communication technologies and the new media have become an important part of daily life. Communication technologies, which have become definitive in the fields of economics and commerce with the digital culture they constitute, offer individuals relatively new and independent use of the media. Within this framework the QR Code (Quick Response Code) has become increasingly important in the usability of means of communication. The QR Code facilitates connection between real objects and designed contents and enables various uses. Originating from the Japanese automobile industry, the QR Code is used in many fields including culture, art and tourism as well as in daily life. Using the QR Code, contents with a designated attribution can be stored and used in a required place and with certain objects. In this way, a new connection can be made between real objects and the contents of the Internet. In the development of communication technologies and the new media, while economics plays an important role, it in turn is also affected by this field. Communication technologies and the new media are also having an effect on culture. The use of analog and digital communication technologies together, as well as hybrid communication technologies, has brought about the

emergence of new media and the meeting of global and local cultures in the process of globalization. Despite the pressure of dominant cultures on local cultures, the capacity of local cultures to resist the dominant cultures creates hybrid cultures. With his book entitled *The Evolution and Emergence of QR Codes*, Celalettin AKTAŞ becomes a pioneer in QR Code research by investigating this subject, which is increasingly important in the world and which is little known and has not been adequately researched in Turkey. xvi Preface The importance and value of this work results from its investigation of the QR Code, communication technologies and the new media within the framework of their technical and economic foundations, and from its indication of the areas in which the QR Code is used and the limitations in its use. Moreover, it formulates solutions for extending the areas of use of the QR Code. A QR code can be easily generated with the collected information of a tree. Getting information has become easier as it helps us to save time and effort that is required to scan books at the library for the same purpose.

QR code installed on plants by the department of Botany P.B Siddhartha college of Arts and science in Vijayawada. They were scanned 20 different species in their campus then app generating a QR code, which is available for free on the online stores, can be used to get the information of the trees. They started this as an experiment but the response has been overwhelming. Now we can see a lot of students, teachers and even visitors extracting information about the trees via the QR code (Reddy, 2011). Students of the CEPT University have come up with the idea of tagging trees on the campus through Quick Response (QR) coding system by which any one can get information about tree species and its habitat. Through QR code system they have assembled a smart phone application called "TAG TREE" which enables one to learn various characteristics of tree, by swiping the QR code attached to the tree through a smart phone (Naidu and Shah, 2017)

Botany students of Sir Parashurambhau (SP) College have developed QR codes for 400 existing trees on the campus to spread awareness about protection of trees. These QR code can be scanned through a camscanner or any scanning application available on smartphones. After this, a PDF will be downloaded from where the details can be obtained; the purpose of their

project was to create awareness about trees and their importance. These barcodes will provide information to even the common man (Changediya and Labade , 2018). The visitors can learn more about the garden flora at Palayam Senate House and Karyavattom campus of the University of Kerala just by scanning a unique QR code. With this move, the University of Kerala has become the first university in the country to have a digitalized garden. More than 250 species of trees were documented by the Palayam Senate House and Karyavattom campus. Different species of trees such as poon spar of Travancore (*Calophyllum calaba*), upas tree (*Antiaris toxicaria*), Malamavu (*Buchanania lanceolata*) and almondette tree (*Buchanania lanzan*) are present. And the documented data was digitalized through website creation and QR code linking (Gangaprasad and Nair, 2020).

As part of the digital garden project, Kochi Maharaja's college invented QR code for campus trees by Botany department (Fathima, 2021). As the part of the project trees now have boards with their names and QR code, which when scanned would lead to a link to the college website with information about the garden. Usually documenting fauna takes longer time, two – three months that they spent on this project. The trees are studied over the course of a few seasons so that tree is studied during its various stages- flowering, bearing fruit and shedding. The Botany department of Jamia Millia Islamia was initiated to identify the vast foliage cover on the university campus by simply scanning the QR codes affixed to the trees. After a botanical survey, they identified 170 plant species on the campus and around 1000 trees has also been labeled appropriately. The QR codes provide information such as which country or place a tree is a native of whether it is a medicinal, avenue or ornamental tree and what its economic importance is. (Qureshi, 2021)

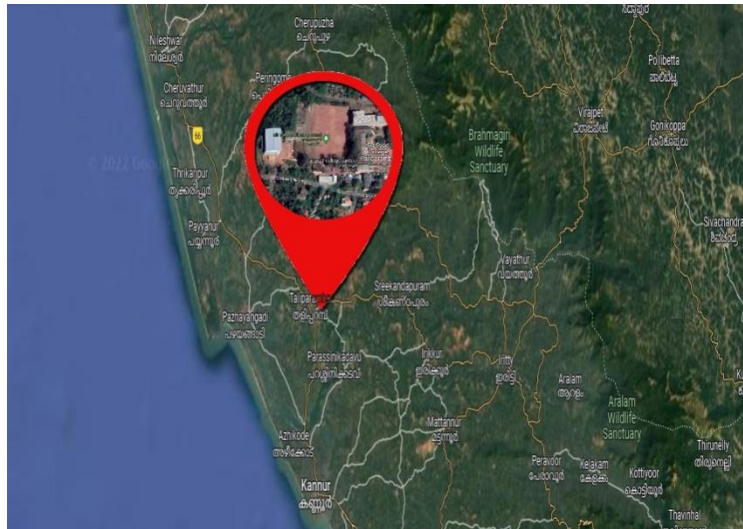
Now we can read up information on the flora around Mumbai university kalian campus by scanning a code. As a part of biodiversity audit, around 5500 trees on the campus have been identified, geotagged and QR coded. Using the biodiversity listing by international union for conservation of nature, and also the surveyors found that some trees on the campus such as Kokam, Chandan, Bel trees are near threatened (Majumdar, 2021). With the increased use of smart phones, the authorities of the Government Degree College (GDC) at Narsampet have come up

with a novel idea of pasting the Quick Response (QR) codes on the trees grown on the college campus spread over 18 acres of the land. Upon being scanned using the smart phones, these QR codes will provide complete information pertaining to the respective trees. Department of Botany had developed the QR codes and pasted them on some of the trees. The campus contain about 400 trees. The installation of QR codes is very much helpful for gaining knowledge about the trees. Getting information has become easier as it helps us save time and effort that is required to scan books at the library for the same purpose (Narender, 2021). Department of Botany at Vikram University has made a unique and new beginning to identify trees through QR codes. From the point of biodiversity, the Department of Botany at Vikram University is known for its best botanical garden in Madhya Pradesh. For the convenience of the students and visitors, QR codes are being installed on trees located on the campus (Vani, 2022).

MATERIALS AND METHODOLOGY

LOCATION

The present study was conducted in [Sir Syed College Taliparamba, Kannur, Kerala](#). The college campus is located on a hillock at Karimbam, Taliparamba. Campus spreads over 8 acres and flourishes with various species of trees. The soil type is laterite.



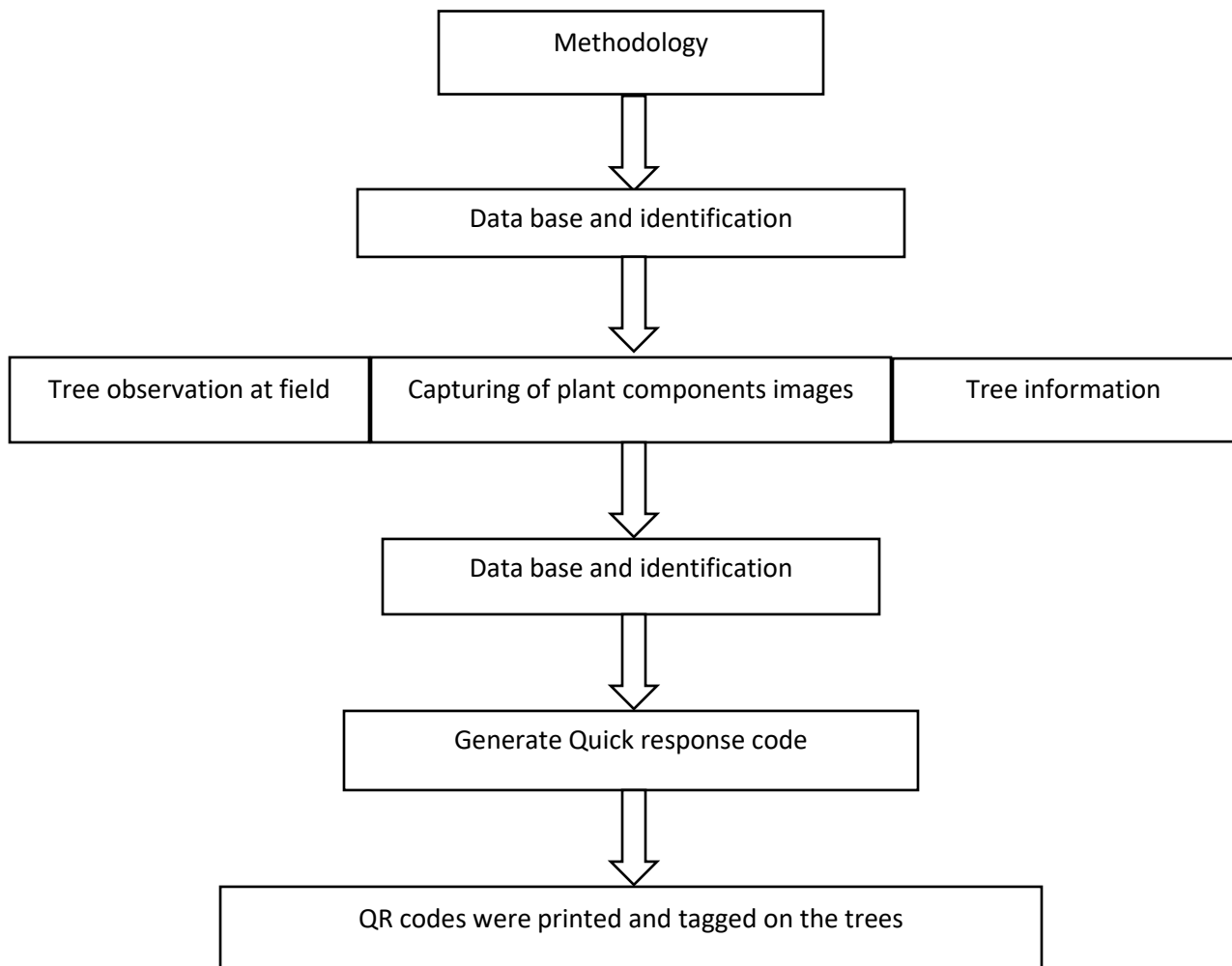
Latitude: 12°02'19.5"N
Longitude: 75°22'35.3"E

SURVEY AND COLLECTION OF FIELD DATA

Entire tree data were collected. A checklist of trees of the campus was prepared and details of each tree were collected from various resources such as flora and internet.

METHODOLOGY

All the information regarding common name, scientific name, distribution, uses, medicinal importance etc. were collected and published in a blog(<https://forestryssc.blogspot.com/2022>). QR code were generated from the information using application(<https://play.google.com/store/apps/details?id=com.ykart.tool.qrcodegen>). Finally the print of QR code of each trees was taken and pasted on the respective trees.



RESULTS AND DISCUSSION

The present study on the survey came up with the following results.

Our study revealed the presence of 504 trees belonging to 50 species in the campus of Sir Syed College, Taliparamba. A check list of trees seen in the campus is given in Table 1.

| SL. NO | NAME OF THE SPECIES | NO OF TREES |
|--------|--------------------------------|-------------|
| 1 | <i>Polyalthialongifolia</i> | 57 |
| 2 | <i>Acacia auriculiformis</i> | 16 |
| 3 | <i>Peltophorumpterocarpum</i> | 51 |
| 4 | <i>Zanthoxylumrhetsa</i> | 6 |
| 5 | <i>Phyllanthusemblica</i> | 11 |
| 6 | <i>Cassia fistula</i> | 12 |
| 7 | <i>Tectonagrandis</i> | 54 |
| 8 | <i>Tamarindusindica</i> | 1 |
| 9 | <i>Swieteniamacrophylla</i> | 12 |
| 10 | <i>Brideliaretusa</i> | 9 |
| 11 | <i>Samaneasaman</i> | 5 |
| 12 | <i>Terminaliacatappa</i> | 3 |
| 13 | <i>Pterocarpussantalinus</i> | 2 |
| 14 | <i>Syzygiumcumini</i> | 17 |
| 15 | <i>Santalum album</i> | 9 |
| 16 | <i>Mangiferaindica</i> | 9 |
| 17 | <i>Artocarpusheterophyllus</i> | 4 |
| 18 | <i>Azadirachtaindica</i> | 4 |
| 19 | <i>Psidiumguajava</i> | 1 |
| 20 | <i>Gmelinaarborea</i> | 5 |
| 21 | <i>Pongamiapinnata</i> | 3 |
| 22 | <i>Careyaarborea</i> | 4 |
| 23 | <i>Casuarinaequisetifolia</i> | 25 |
| 24 | <i>Albizialebeck</i> | 2 |
| 25 | <i>Citharexylumspinosum</i> | 2 |
| 26 | <i>Cocosnucifera</i> | 3 |
| 27 | <i>Bauhinia purpurea</i> | 21 |
| 28 | <i>Largerstroemiaspeciosa</i> | 1 |

| | | |
|----|------------------------------|----|
| 29 | <i>Gliricidiasepium</i> | 16 |
| 30 | <i>Alstoniascholaris</i> | 1 |
| 31 | <i>Leucaenaleucocephala</i> | 7 |
| 32 | <i>Strychnosnux-vomica</i> | 3 |
| 33 | <i>Macarangapeltata</i> | 21 |
| 34 | <i>Azadirachtaindica</i> | 4 |
| 35 | <i>Pterocarpusmarsupium</i> | 1 |
| 36 | <i>Terminaliabellerica</i> | 15 |
| 37 | <i>Caesalpiniasappan</i> | 8 |
| 38 | <i>Annonasquamosa</i> | 1 |
| 39 | <i>Terminaliacattapa</i> | 3 |
| 40 | <i>Cinnamomumverum</i> | 1 |
| 41 | <i>Tremaorientalis</i> | 1 |
| 42 | <i>Chrysophyllumcainito</i> | 1 |
| 43 | <i>Anacardiumoccidentale</i> | 4 |
| 44 | <i>Manilkarasapota</i> | 1 |
| 45 | <i>Simaroubaglauca</i> | 2 |
| 46 | <i>Libidibiacoriaria</i> | 1 |
| 47 | <i>Wodyetiabifurcata</i> | 3 |
| 48 | <i>Caryotaurens</i> | 6 |
| 49 | <i>Lanneacoromandelica</i> | 1 |
| 50 | <i>Terminaliaarjuna</i> | 16 |

Table 1: Checklist of trees of Sir Syed College Campus

From the collected data, we found that *Polyalthia longifolia* is most in number. It is a fast growing tree and requires good exposure to sunlight and moderate watering. It can be grown easily with least maintenance. It grows better in rich, loamy and well drained soils. However it is adaptable to a wide range of soil types. It is for that reason that the trees are found common here.

All the information regarding common name, scientific name, distribution, phenology, medicinal properties, uses etc. can be obtained after scanning the QR code of respective trees. The installation of QR codes is very much helpful for gaining knowledge about the trees. Getting information has become easier as it helps us save time and effort that is required to scan books at the library for the same purpose.

Polyalthia longifolia



Figure 1.1



https://forestryssc.blogspot.com/2022/04/polyalthia-longifolia_27.html

Polyalthia longifolia



April 27, 2022



Polyalthia longifolia

Common Name: (അശോകമരം), False Ashoka, False Asoka, Mast Tree, Indian Mast Tree, Weeping Mast Tree

Family: Annonaceae

Distribution

Found **natively** in India and Sri Lanka. It is introduced in gardens in many tropical countries around the world.

Climate

Grows naturally in sub-humid to humid subtropical and tropical climates, generally frost-free areas with annual lows of 16 to 25°C, annual highs of 25 to 36°C, annual rainfall of 800 to 3800 mm and a dry season of 8 months or less, extending to 12 months with irrigation or groundwater.

Leaves

Emerging leaves have a coppery brown pigmentation; as the leaves grow older, the color becomes a light green and, finally, a dark green. The leaves are **lanceolate** and have wavy edges. The leaves are larval food plant of the **tailed jay** and the **kite swallowtail** butterflies.

Flowers

Flowers appear during March and April. For a short period – two or three weeks only – the tree is covered with a profusion of delicate, star-like flowers, which, being palest-green in colour, give the tree a peculiar hazy appearance. They grow in clusters from small protuberances all along the dark branchlets.

Fruit

For a brief period in spring, masses of pale yellow-green star-shaped flowers bloom amid the leaves. These are followed by **green, coffee-berry-like fruit with a single seed**, ripening to dark purple or near black from summer to autumn.



Flowers



Fruits



Leaves

Uses

The leaves are used for ornamental decoration during festivals.

wood is mostly used for manufacturing small articles such as pencils, boxes, matchsticks, etc.

The wood is yellowish to grey-white, of medium weight, averaging around 590 kilograms per cubic meter but has a low natural resistance to rot and decay. And the trunk diameter is too small to make sawing into lumber practical. It is reportedly only suitable for making light articles such as matches and pencils. However, in parts of its native range, it is crafted into musical drums.

Medicinal Importance

This plant is used as an antipyretic agent in indigenous systems of medicine. Pharmacologic studies on the bark and leaves of this plant display effective antimicrobial activity, cytotoxic function, and hypotensive effects.



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https://forestryssc.blogspot.com/2022/04/polyalthia-longifolia_27.html

Phyllanthus emblica

April 21, 2022



Phyllanthus emblica Common Name : എമ്പലിക്കം Emblic , emblic myrobalan , myrobalan , Indian gooseberry , Malacca tree , amla , Family: Phyllanthaceae Distribution In its natural distribution area Phyllanthus emblica is a light-demanding species, often common in grassy areas, brush ε ...

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Tectona grandis

April 22, 2022



Tectona grandis Common Name ; തേക്ക്, Teak Family : Verbanaceae Distribution Tectona grandis is native to south and southeast Asia ,mainly Bangladesh , India , Indonesia , Malaysia , Myanmar , Thailand and Sri Lanka , but is naturalised and cultivated in many countries in Africa and ...

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Azadirachta indica

April 22, 2022




Azadirachta indica Common name : അരുന്ദവ്വെണ്ണ , Neem tree , Indian lilac, Nimba, margosa tree and dogonyaro in Nigeria Family : Meliaceae Distribution It is considered to be native to dry areas in Afghanistan, Pakistan, India, Sri Lanka, Bangladesh, Myanmar and China (Abdulla, 1972; T ...

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CONCLUSION

Tree mapping is an important method for gaining knowledge about trees. It involves other interesting activities that help to learn mapping techniques, web page development and QR coding. This proposed work helps the students to access all the information about the trees ranging from its botanical name to its medicinal value. It saves the time of the students and provides quick, handy useful information about the trees in seconds. This effort may lead to protect the trees and maintain the environmental sustainability. And also it improves the biological knowledge of students as they learn to access tree morphology.

Tree mapping of Sir Syed Campus will definitely attract the attention of students as well as maintenance staff to improve and take care of trees. Now QR coded trees of Sir Syed Campus are online and by scanning any tagged tree its information will be appeared on the phone or any other devices. Anyone can scan and learn about Sir Syed trees such as tree name, family, morphological features and uses of trees. Even the location of particular tree can be retrieved using the constructed google maps.

SUMMARY

- Surveyed different trees on laterite hillocks of the campus.
- Entire tree data were collected.
- From the collected data, we observed that *Polyalthia longifolia* is most in number.
- Different webpages were created for different types of trees.
- QR codes were prepared by using these webpages.
- These QR codes were tagged around the trees.

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