

RANI CHANNAMMA UNIVERSITY BELAGAVI

**GEOGRAPHY PRACTICAL EXAM APRIL/MAY 2020
FIELD WORK AND PROJECT REPORT
ON**

**SURVEY OF BIOLOGICAL DIVERSITY
WITH REFERENCE TO FAUNA AND FLORA IN R.P.D
COLLEGE CAMPUS, BELAGAVI AND THE NEED TO
PRESERVE IT FOR POSTERITY.**

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CERTIFICATE

This is to certify that Mr. / Miss. _____ Seat No. _____ of B.A. Sixth semester Rani Parvati Devi College of Arts & Commerce, Belgaum has successfully completed Geography Practical Paper II - Field work and project report, prescribed by Rani Channamma University Belagavi for B.A. sixth semester examination in the Geography Laboratory during the academic year 2019-20. The project work carried out by he/her is satisfactory.

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DECLARATION

I declare that the report on “*SURVEY OF BIOLOGICAL DIVERSITY WITH REFERENCE TO FAUNA AND FLORA IN R.P.D COLLEGE CAMPUS, BELAGAVI AND THE NEED TO PRESERVE IT FOR POSTERITY*” prepared by me under the guidance and supervision of Dr. Abhay M. Patil, Head of the Department of Geography, R.P. D. College, Belagavi during the course of exercises in **PRACTICAL GEOGRAPHY** prescribed by the Rani Channamma University, Belagavi during the year June 2020 is relevant to the best of my knowledge.

Belagavi

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SURVEY OF BIOLOGICAL DIVERSITY WITH REFERENCE TO FAUNA AND FLORA IN R.P.D COLLEGE CAMPUS, BELAGAVI AND THE NEED TO PRESERVE IT FOR POSTERITY.

INTRODUCTION :

For much of the time man lived in a hunter-gather society and thus depended entirely on biodiversity for sustenance. But, with the increased dependence on agriculture and industrialization, the emphasis on biodiversity has decreased. Indeed, the biodiversity, in wild and domesticated forms, is the source for most of humanity, food, medicine, clothing and housing, much of the cultural diversity and most of the intellectual and spiritual inspiration. It is, without doubt, the very basis of life. Further that, a quarter of the earth's total biological diversity amounting to 1.7 million species, which might be useful to mankind in one way or other, would be in serious risk of existence over the next 2-3 decades. On realization that the erosion of biodiversity may threaten the very existence of life has awakened man to take steps to conserve it. In this project, the overview of biodiversity status of India, its importance, threats to it and various approaches for biodiversity conservation, action plan and current status have been discussed and also tried to highlight the biodiversity at the Rani Parvati Devi College campus from where the students belong to.

WHAT IS BIODIVERSITY?

The concept of biodiversity (synonyms with biological diversity) has been known to man ever since he began to minutely observe the living being around him. The term biological diversity was used by Robert E. Jenkins and Thomas Lovejoy in 1980. The word biodiversity itself may have been coined by W. G. Rosen in 1985. The term biodiversity was used as the title for a symposium organized by national Research council in Washington in 1986. At about that time, as people became more aware of the extinction crisis, biodiversity emerged as a significant issue. It was given concrete expression in the World

Resources Institute (WRI), World Bank (WB), International Union of Nature and Natural Resources (IUCN) and World Wide Fund for Nature (WWF) publications concerned with conservation of world's biological diversity. However, biodiversity did not become a familiar term to general public until the United Nations Conference on the Environmental and Development (UNCED) held at Rio de Janeiro (Brazil) in 1992. The Conference laid immense stress on the biological diversity of our earth planet and the need to preserve it for posterity.

Definitions on Biodiversity:

1. 'Biodiversity means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.' This is the single legally accepted definition of biodiversity adopted by the UN convention on Biological Diversity.
2. The most straight forward definition of biodiversity is the 'Variation of life at all levels of biological organization. It includes diversity of forms, right from the molecular unit to the individual organism, and then on to the population, community, ecosystem, landscape and biosphere levels'.
3. In the simplest sense, biodiversity may be defined as the sum total of species richness, i.e. the number of species of plants, animals and micro-organisms occurring in a given region, country, continent or the entire globe.

Broadly speaking, the term biodiversity includes genetic diversity, species diversity, ecosystem diversity and habitat diversity.

Genetic diversity (Diversity of genes within a species)

Genetic diversity refers to the variation of genes among the population and the individuals of the same species. There are about 1.7 million known species of living forms on the earth. Each one stores an immense amount of genetic information. For example, the number of genes is 35,000 in Homo sapiens. Genetic variation within species constitutes distinct populations of the same species or genetic variation within population or varieties. Genetic variations

represent the differences in the sequence of bases in nucleotides, which constitutes the genetic code. Genetic variations are due to gene mutations, and in an organism with sexual reproduction these can spread by crossing-over and recombination. Other kinds of genetic diversity can be seen at all levels of organization, including the amount of DNA per cell, chromosome structure and their number. Genetic diversity provides the raw materials for adaptation to changing environment and for the natural selection to act upon. If a species has more genetic variability, it can adapt better of to the changed environment. The amount of genetic variation is the basis of the evolution of new life forms (speciation). It has a key role in the maintenance of biodiversity at species levels.

Species diversity (Diversity among species) :

It refers to the variety of species within a region, i.e. the number of species per unit area at the site (species richness). An estimated 1.7 million species have been described to date. Species are the primary focus of evolutionary mechanisms and therefore the origin and evolution of species are principle agents in maintenance of global biodiversity.

Ecosystem diversity (Diversity at the level of community/ecosystem):

In an ecosystem there may exist different land forms, each of which supports different but specific vegetations. Ecosystem diversity in contrast to genetic and specific diversity is difficult to assess quantitatively since the boundaries of the communities, which constitute the various sub-ecosystems are elusive. Ecosystem diversity could best understood if one studies the communities in various ecological niches within the given ecosystem; each ecosystem is associated with defined species complexes. These complexes are related to composition and structure of the ecosystem.

Habitat diversity:

It involves more than just the kind of communities and species- it depends on the spatial arrangement of habitats across a large and on the fluxes of energy, nutrients, disturbances and organisms across the area. Ecological use three different terms for various practical measures of biodiversity:

Alpha diversity:

It refers to diversity within a particular area, community or ecosystem, and is measured by counting the number of taxa within the ecosystem (usually species).

Beta diversity :

It refers to species diversity between ecosystems and is measured by comparing the number of taxa that are unique to each of the ecosystems.

Gamma diversity :

It is a measure of overall diversity for different ecosystems within a region.

Species diversity in natural habitats is high in warm areas and decreases with increasing latitude and altitude. On land, diversity is higher in areas of higher rainfall and lower in drier areas. Tropical moist forests undoubtedly, are the richer areas. These comprise only 7 per cent of the world surface area, but contain over 90 per cent of all species. In India we are endowed with a rich diversity of bio-geographically distinct regions due to varying physical conditions and species groupings.

BIODIVERSITY AT GLOBAL AND COUNTRY LEVEL

It is estimated that there exists 5-50 million species of living forms on the earth. However, only 1.7 million have been identified so far. These include 4,27,205 species of green plants, fungi, bacteria and viruses; 61,917 species of vertebrates and protochordata; and 12,32,490 species of invertebrates including protista. Comparative accounts of recorded plant and animal species in India and the world are given in Table 1 and 2.

**COMPARATIVE ACCOUNT OF RECORDED
NUMBER OF PLANT SPECIES IN INDIA AND THE WORLD.**

Table 1

Texa	Species		Percentage of India to the world
	India	World	
Bacteria	850	8,050	10.56
Viruses	Unknown	4,000	-
Algae	6,500	40,000	16-25
Fungi	14,500	72,000	20.14
Lichens	2,021	35,000	14.97
Bryophyta	2,825	17,000	16.62
Pteridophyta	1,200	13,025*	9.21
Gymnosperms	48	980*	4.90
Angiosperms	18,000+	2,58,650*	6.96
Total	45,944	4,27,205	10.75
Source: ENVIS, BSI, 2006; IUCN Red List 2007* .			

**COMPARATIVE ACCOUNT OF RECORDED
NUMBER OF ANIMAL SPECIES IN INDIA AND THE WORLD.**

Table 2

Texa	Species		Percentage of India to the world
	India	World	
Protista	2,577	31,290	8.24
Mollusca	5,070	81,000*	6.26
Arthropoda	68,389	9,90,000*	6.91
Other invertebrates	8,329	1,30,200*	6.40
Protochordata	119	106	5.65
Pisces	2,546	30,000*	8.49
Amphibia	209 6	199*	3.37
Reptilia	456 8,	240*	5.53
Aves	1,232	9,956*	12.37
Mammalia	390 5,	416*	7.20
Total	89,317 12,	94,407	6.90
Source: MoEF 1999; IUCN Red List 2007*			

India with 2.45 per cent of the world's area, has 8.10 per cent of the world's total biodiversity with a species count of over 1,35,261. Some salient features of India's biodiversity are as follows:

India has two major realms called Palearctic and the Indo-Malayan, and three biomes namely the tropical humid forests, the tropical dry/deciduous forests and the warm desert/semi deserts.

India has 10 biogeographical regions including (i) the Trans-Himalayan, (ii) Himalayan, (iii) Desert, (iv) Semi-Arid, (v) Western Ghats, (vi) Deccan Peninsula, (vii) Gangetic plain, (viii) Coasts, (ix) Northeast, and (x) Islands (Rodgers and Panwar, 1988). Among these biogeographic zones, Deccan Peninsula has the most extensive coverage of the Indian landmass (42%). The most biodiversity-rich zones, Western Ghats and Northeast, account only for 4 and 5.2 per cent of the geographical area. These zones have habitats, biotic communities and ecosystems. India has 15 Biosphere Reserves, 44 tiger Reserves, 102 national Parks, and 512 Wildlife Sanctuaries. The total protected area is about 0.20 million km² (about 4.9 % of the geographical area). Also, it has 5 world heritage sites and 25 Ramsar wetlands. In addition, the country is one of the very important Vavilovian Centers of biodiversity and origin of over 167 species of crops, 320 species of wild crop relatives, and several species of domesticated animals. In flora, the country can boast of 45,944 species, which accounts for 10.75 per cent of the known world plants. Of the 18,000 species of flowering plants (angiosperms) 36 per cent are endemic and located in 26 endemic centers. Our country is very rich in faunal wealth too. The country has nearly 89,317 animal species, about 75 percent of which are insects, 4,952 vertebrates including protochordata and about 84,365 are invertebrates, including protista. In animals, the rate of endemism in reptiles is 33 per cent, in amphibians 41 per cent, in mammals 9 per cent, and birds 4 per cent.

IMPORTANCE OF BIODIVERSITY

Ecological role of biodiversity: All species provide some kind of function to an ecosystem. They can capture and store energy, produce organic material, decompose organic material, help to recycle water and nutrients throughout the ecosystem, control erosion or pests, fix atmospheric gases, and help regulate climate. These physiologically processes are important for ecosystem function and human survival. Diverse is the ecosystem better able to withstand environmental stress and consequently is more productive. The loss of a species is thus likely to decrease the ability of the system to maintain itself or to recover from damage or disturbance. Just like a species with high genetic diversity, an ecosystem with high biodiversity may have a greater chance of adapting to environmental change. In other words, the more species comprising an ecosystem, the more stable the ecosystem is likely to be.

Economic role of biodiversity: Biodiversity is first a resource for daily life. One important part of biodiversity is crop diversity, which is also called agrobiodiversity. Most people see biodiversity as a reservoir of resources to be drawn upon for the manufacture of food, pharmaceutical, and cosmetic products. Some of the important economic commodities that biodiversity supplies to humankind are: Modern agriculture: Biodiversity is used as a source of material for breeding improved varieties, and as biopesticides, biofertilizers etc.

Food: Crops, livestock, forestry and fish. Mangroves and coral reefs in coastal zone support fisheries.

Medical drugs: Wild plant species have been used for medicinal purposes since before the beginning of recorded history. For example, quinine comes from the cinchona tree (used to treat malaria), digitalis from the foxglove plant (chronic heart trouble), and morphine from the poppy plant (pain relief). According to the National cancer Institute, over 70% of the promising anticancer drugs come from plants in the tropical rainforests. It is estimated that of the 2,50,000 known

plants species, only 5,000 have been investigated for possible medical applications.

Industry: Fibers are used for clothing, wood for shelter, energy and various other uses. Biodiversity may be a source of energy (such as biomass). Other industrial products are oils, fragrances, dyes paper, waxes, rubber, latexes, resins, poisons, and cork, which all can be derived from various plant species. Supplies from animal origin include wool, silk, fur, leather, lubricants and waxes. Animals may also be used as a mode of transport.

Aesthetic and cultural benefits: Biodiversity has great aesthetic value. Examples of aesthetic value include eco-tourism, bird watching, wildlife, gardening, etc. Eco-tourism is a source of economical wealth for many areas, such as many parks and forests, where wild nature and animals are a source of beauty and joy for many people. Biodiversity is also part of many cultural and religious beliefs. In many Indian villages and towns, plants like *Ocimum sanctum* (Tulsi), *Ficus religiosa* (Pipal), and *Prosopis cineraria* (Khejri) and various other trees are considered sacred and worshipped by the people. Several birds, animals and even snake have been considered sacred. Also, we recognize several animals as symbols of national and heritage.

Scientific role of biodiversity: Biodiversity is important because each species can give scientists some clue as to how the life evolved and will continue to evolve on Earth. In addition, biodiversity helps scientists understand how life functions and the role of each species in sustaining ecosystems. From above it is clear that the survival and well being of the present day human population, depends on several substances obtained from plants and animals. The nutritional needs of mankind are also met by wild and domesticated animal and plant species. Indeed, the biodiversity in wild and domesticated form is the source for most of humanity's food, medicine, clothing and housing, much of the cultural diversity, and most of the intellectual and spiritual inspiration. It is, without

doubt, the very basis of man's being. It is believed that 1/4th of the known biodiversity, which might be useful to mankind in one way or the other, is in serious risk of extinction. This calls for an integrated approach for conserving global biodiversity.

THE THREATENED BIODIVERSITY

The loss of biological diversity is a global crisis. There is hardly any region on the Earth that is not facing ecological catastrophes. Of the 1.7 million species known to inhabit the Earth (human are just one of them), one third to one fourth is likely to extinct within the next few decades. Biological extinction has been a natural phenomenon in geological history. But the rate of extinction was perhaps one species every 1000 years. But man's intervention has speeded up extinction rates all the more. Between 1600 and 1500, the rate of extinction went up to one species every 10 years. It is estimated that about 50 species are being driven to extinction every year, bulk of them in tropical forest, due to human interference.

COMPARATIVE STATEMENT OF RECORDED NUMBER OF THREATENED SPECIES IN INDIA AND WORLD (ALSO SHOWN ARE ENDEMIC SPECIES IN INDIA)

Table 3

Taxa	India			World	% of India to the World
		Endemic	Threatened		
	Species	Species	Species		
Protista	2577			31259	8.24
Mollusca	5070	967		66535	7.62
Arthropoda	68389	16214 (Insects)		987949	6.9
Other Invertebrates	8329		22	87121	9.56
Protochordata	119			2106	5.65
Pisces	2546		4	21723	11.72
Amphibia	209	110	3	5150	4.06
Reptilia	456	214	16	5817	7.84
Aves	1232	69	73	9026	13.66
Mamalia	390	38	75	4629	8.42
Source: MoEF 1999.					

Listing of threatened biodiversity:

To highlight the legal status of rare species for the purpose of conservation, the International Union for Conservation of Nature and Natural Resources (IUCN) has established the following five main conservation categories: Extinct species that are no longer known to exist in the wild. Searches of localities where they were once found and of other possible sites have failed to detect the species. Endangered species that have a high likelihood of going extinct in the near future. Vulnerable species that may become endangered in the near future because populations of the species are decreasing in size throughout its range. Rare species that have small total numbers of individuals often due to limited geographical ranges or low population densities. Insufficiently known species that probably belong to one of the conservation categories but are not sufficiently well known to be assigned to a specific category. These categories were named as Red list categories. The IUCN Red List is the catalogue of taxa that are facing the risk of extinction. This list aims to impart information about the urgency and scale of conservation problems to the public, environmentalists and policy makers. On the global level, the IUCN published Red Data Book, name given to the book dealing with threatened plants and animals of any region. The IUCN, now known as World Conservation Union (WCU), in 2001 recognized nine Red List Categories as Extinct (Ex), Extinct in wild (EW), Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Near Threatened (NT), Least Concern (LC), Data Deficient (DD) and Not Evaluated (NE). The main purpose of the IUCN RED List is to catalogue and highlight those taxa that are facing a higher risk of global extinction (i.e. those listed Critically Endangered, Endangered and Vulnerable).

Reasons for extinction of Biodiversity :

Destruction of habitat: The natural habitat may be destroyed by man for his settlement, grazing grounds, agriculture, mining, industries, highway construction, drainage, dam building, etc. as a consequence of this, the species

must adapt to the changes, move elsewhere or may succumb to predation, starvation or disease and eventually die. This is the most pervasive threat to birds, mammals and plants affecting 89 per cent of all threatened birds, 83 per cent of the threatened animals assessed. In our country, several rare butterfly species are facing extinction with the uncannily swift habitat destruction of the Western Ghats. Of the 370 butterfly species available in the Ghats, up to 70 are at the brink of extinction.

Hunting: From time immemorial, man has hunted for food. Commercially, wild animals are hunted for their products such as hide and skin, tusk, antlers, fur meat, pharmaceuticals, perfumes, cosmetics and decoration purposes. For example, in India, rhino is hunted for its horns, tigers for bones and skin, musk deer for musk (have medicinal value), elephant for ivory, gharial and crocodile for their skin, and jackal for thriving fur trade in Kashmir. One of the most publicized commercial hunts is that of whale. The whalebone or 'baleen' is used to make combs and other products. Poaching of the Indian tiger has been rising because of the increasing demand from pharmaceutical industries, which consume the bones of 100 tigers per year. Such huge demand has been met by poachers from India. Even the Project tiger Programme failed to check poaching and resultantly the tigers have been almost disappeared from Ranthambore and Keoladeo national parks. Smuggling of tiger bones and skins is a lucrative business. Hunting for sport is also a factor for loss of wild animals.

Over exploitation: This is one of the main cause of the loss of not only economic species but also biological curiosities like the insectivorous and primitive species and other taxa needed for teaching or laboratory (like *Nepenthes*, *Gnetum*, *Psilotum*, etc.). commercial exploitation of wild plants has invariably causes their overuse and eventual destruction. This has been true in case of Indian wild mango trees, which were turned into plywood as of the whales that were hunted for tallow. Plants of medicinal value like *Podophyllum hexandrum*, *Coptis teeta*, *Aconitum*, *Disocorea deltoidea*, *Rauwolfia serpentine*, *Paphiopedilum druryi*, etc., and horticultural plants like orchids and rhododendrons come under the over-exploited category. Faunal losses have been

mainly because of over-exploitation. For instance, excessive harvesting of marine organisms such as fish, mollusks, sea cows and sea turtles has resulted in extinction of these animals.

Collection for zoo and research: Animals and plants are collected throughout the world for zoo and biological laboratories for study and research in science and medicine. For example, primates such as monkey and chimpanzees are sacrificed for research as they have anatomical, genetic and physiological similarities to human being.

Introduction of exotic species: Native species are subjected to competition for food and space due to competition for food and space due to introduction of exotic species. For example, introduction of goats and rabbits in the Pacific and Indian regions has resulted in destruction of habitats of several plants, birds and reptiles.

Control of pest and predators: predator and pest control measures, generally kill predators that are a component of balanced ecosystem and may also indiscriminately poison non-target species.

Pollution: Pollution alters the natural habitat. Water pollution especially injurious to the biotic components of estuary and coastal ecosystem. Toxic wastes entering the water bodies disturb the food chain, and so to the aquatic ecosystems. Insecticides, pesticides, sulphur dioxide, nitrogen oxides, acid rain, ozone depletion and global warming too, affect adversely the plant and animal species. The impact of coastal pollution is also very important, it is seen that coral reefs are being threatened by pollution from industrialization along the coast, oil transport and offshore mining. Noise pollution is also the cause of wildlife extinction. According to a study Arctic whales are seen on the verge of extinction as a result of increasing noise of ships, particularly ice breakers and tankers.

Deforestation: One of the main causes for the loss of wildlife is population explosion and the resultant deforestation. Deforestation mainly results from population settlement, shifting cultivation, development projects, demand for

fuel wood, demand of wood as a raw material for many industries such as paper and pulp, match, veneer and plywood, furniture etc. In the Country, the current rate of deforestation is 13,000 sq. km annually. If this rate of deforestation continues, one can imagine the ultimate fate of our forest and biological richness. It is presumed that in coming years, the global loss of biodiversity from deforestation alone would be 100 species every day.

Other factors: Other ecological factors that may also contribute to the extinction of wildlife are as follows: i. Distribution range – The smaller the range of distribution, the greater the threat of extinction. ii. Degree of specialization – The more specialized an organism is, the more vulnerable it is to extinction. iii. Position of the organism in the food chain – The higher the position of the organism is in food chain, the more susceptibility it becomes. iv. Reproductive rate – Large organisms tend to produce fewer offspring at widely spaced intervals. v. Outbreaks of diseases – it is also one of the major causes for the decline in wildlife species. vi. Loss of gene flow – The individuals of plant and animal life may decline to the significant levels as a result of loss of gene flow. vii. Substitution – During the process of evolution an existing species may be replaced by ecologically another one. In developing countries like India, the development policies and projects have rarely been sensitive to the need for biodiversity conservation, and that of the local communities. The government's failure to remove poverty and curb middle-class consumerism has led conditions in which sensible natural resources management assumes low priority.

BIODIVERSITY CONSERVATION METHODS

We must make every effort to preserve, conserve and manage biodiversity. Protected areas, from large wilderness reserves to small sites for particular species and reserves for controlled uses, will all be part of this process. Protected areas are legally established sites managed for conservation of biodiversity. Worldwide about 8,163 protected areas cover over 750 million hectares of marine and terrestrial ecosystems, amounting to 1.5 percent of Earth's surface. India is the second most populous country, and therefore any

plan attempting at conservation must consider socio-economic development as the mounting human pressure threatens the biotic resources of the country. Furthermore, ours is predominantly an agriculture country, and hence, policy makers should realize that conservation and sustainable utilization of biodiversity is the key to all developmental planning projects.

Status of Biodiversity in Karnataka :

The state of Karnataka is a part of the highly biodiversity rich regions of India. The state boasts of a great diversity of climate, topography, soils. It spans the sea coast with its corals and mangrove swamps at the mouths of estuaries. It harbours verdant rain forests, paddy fields and coconut and arecanut orchards on the narrow coast flanked by the hills of Western Ghats. It bears deciduous woods and scrub jungles, and the sugarcane, cotton, groundnut, ragi and jowar fields of the Deccan plateau. The different environmental regimes support their own characteristic set of plants and animals. The lion tailed macaque and the racket tailed drongo are characteristic of the rain forests, the blackbuck and the Great Indian Bustard of the grasslands and scrub jungles of the Deccan plateau.

How many different species of living organisms are there in Karnataka? We know that there are about 1,20,000 such species described from all over India, while four lakhs is a good estimate of the number of species of such animals, described and undescribed that our country harbours. The fraction of these occurring in Karnataka is also unknown. Roughly 25% of the 17,500 species of flowering plants of India occur in Karnataka; but over 40% of the 1228 species of the more mobile birds do so. The fraction of smaller animals present is likely to be closer to that for plants, since they too are not very mobile. So Karnataka probably harbours some 22,000 known and 100,000 total species of little known organisms. The number of species in other groups are better known, and our state probably boasts of around 4500 species of flowering plants, around 500 species of birds, about 120 species of mammals ,about 160 species of reptiles

(turtles, snakes, lizards and crocodiles), about 70 species of frogs, and about 800 species of fish.

We are justly proud that Karnataka is beginning to play a significant role in the emerging information age on the global stage. Yet, we are very poorly equipped with information and institutions to manage our ecological resources. Medicinal plants are one of the most important of these. About 300 species of such plants are in commercial use in Karnataka today, yet neither the Forest Department, nor the industry has any detailed, reliable information on the stocks of these species, the extent to which they are being depleted (as is believed to be the case for many of the species), the causes of depletion, and options for sustainable use. All that the Forest Dept records is the Forest Range-wise amounts for auctions for rights to collect some 26 out of these 300 species. Since prices and bidding fluctuates greatly, this provides only very limited information on the stocks of these species; there is no quantitative information whatsoever for the remaining 274 species. The industry knows that broad regions from which the supplies have been coming have been shifting, the levels of availability have often been changing and that in response the prices have also been changing; but has no really detailed information at its disposal. The only reliable information on these issues, albeit limited to their own localities, resides with forest produce collectors who are employed by agents of pharmaceutical companies, or with folk practitioners of herbal remedies. Similarly, there is no organized information on the status of the indigenous fish fauna of our freshwaters. Yet such fish constitute an important source of protein, especially for the weaker sections of the society. Again the only source of information on this issue, albeit limited to their own localities, is with our native fisher-folk. Nor do we possess any detailed information on the genetic diversity of cultivated plants and domesticated animals still being maintained under field conditions by farmers and herders. We are, therefore, constrained to make only qualitative statements about this important sector.

Ours is still a biomass-based civilization; many of Karnataka's citizens cultivate a wide range of species and varieties, consume wild fruit and fish, use fuel-wood to cook their meals and grass to thatch their huts and cowsheds, extensively employ herbal remedies and worship peepal trees and hanuman langurs. We are also a state rich in knowledge of uses of our living resources, ranging from the classical traditions of Ayurveda, Siddha and Yunani, to folk medicinal practices and uses of vegetable perfumes, cosmetics and dyes. But Karnataka's ecological resource base is under threat, with extensive destruction of natural habitats, widespread degradation of agro- ecosystems and a growing burden of pollution. Simultaneously, Karnataka's knowledge base of uses of biodiversity is also being eroded, with the younger generation becoming increasingly alienated from the natural world.

This is happening at a time when technological advances have greatly enhanced the potential of uses of biodiversity. We can now transfer genes across organisms, so that goats may be made to produce spider silk that is stronger than a steel fiber of the same diameter. Spiders also produce neurotoxins that may find application in treatment of nervous disorders. All of this means that organisms thus far considered beneath our notice may turn out to be of considerable applied value. Such organisms may be present anywhere, even in highly degraded habitats.

The wealth of strains of domesticated plants and animals on our farms and in the camps of our cowherds and shepherds also holds much promise. The hill chain of Western Ghats has a greater diversity of wild relatives of cultivated plants than any other region of comparable size in the world. Much of this diversity of domesticated organisms and their wild relatives is also being rapidly lost.

Life in Karnataka's rivers, lakes, estuaries and the seas is under even greater stress than that on the land. With all attention focused on culturing of a few species of economic interest like carps and tiger prawns, there has been little

thought devoted to conservation and prudent use of the state's aquatic biodiversity. Yet this loss is occurring at a time when pharmaceutical companies are focusing their attention on marine organisms as the greatest, and as yet little explored treasury of bioactive compounds on the earth.

It is clear that we need to look after the ecological well being of Karnataka's lands and waters, not only of the few remaining natural habitats, but also of farm lands and irrigation tanks, of overgrazed pastures and eroded hill slopes. We need to carefully plan on conserving, sustainably using and restoring the biological diversity across the length and breadth of the state. We also need to conserve and benefit from the knowledge of uses and the traditions of conservation of this biological diversity. Finally the state must ensure that benefits flowing from our heritage of biodiversity and related folk knowledge percolate down to the people at the grass-roots.

This formidable challenge can be addressed only through making conservation, sustainable use and equitable sharing of benefits of biodiversity a people's movement. For biological diversity can be cared for only with the co-operation of masses of the people, many of whom still depend on it for their day-to-day sustenance. Equally importantly, much of the knowledge of the status and dynamics of this biodiversity resides with these same people. Karnataka has played a leading role in involving its population in the democratic process through its Panchayati Raj institutions. It has also been in the forefront of programmes of participatory resource management such as Watershed Development and Joint Forest Planning and Management. India's new Biological Diversity Act has opened up important opportunities for taking good care of the state's rich heritage of biodiversity in partnership with its people. This thematic report attempts to provide concrete suggestions on how to set about this task.

This report draws on extensive inputs from a variety of sources. It uses all the inputs developed through the two year Karnataka State Biodiversity Strategy and Action Plan process that involved working with hundreds of school students and teachers, respondents to a series of radio broadcasts and newspaper articles, public hearings, case studies and expert group reports. The State of Environment report added to this backg

round extensive discussions in five grama sabhas on the basis of on-going People's Biodiversity Register exercises, series of discussions involving officials and NGOs in ten districts, discussions with officials at the state level, and inputs from the Karnataka State Biodiversity Strategy and Action Plan Working Group.

BIO DIVERSITY KARNATAKA (FAUNA AND FLORA)

Table - 4

Living Species	Around 1.20 lakhs
Flowering plant	4,500 species
Birds	522 species
Mammals	158 species
Reptiles	158 species
Amphibians	121 species
Fishes (Marine & Brackish water)	405 species
Fishes (Fresh water)	218 species
Butterflies	300 species
Medicinal Plants	1493 species.

FAUNA AND FLORA OF RPD COLLEGE CAMPUS

JAMUN - JAVA PLUM



Syzygium cumini

Summary

Scientific Classification

Kingdom: Plantae

Division: Magnoliophyta

Class: magnolipsida

Order: myrtales

Family: Myrtaceae

Genus: Syzygium

Species: S.cumini

Scientific Name: Syzygium cumini.

Common names

English : Java plum, Black plum.

Hindi: Jamun, Jambol, Jambul.

Kannada: Nerale.

Marathi: Jaman, Jambul.

Discription

1. **Habit and Habitat:** Terrestria, Evergreen tropical tree with white exfoliate bark.
2. **Distribution:** It is native to Indian subcontinent and adjoining parts of southeast Asia. Distributed all over Bangladesh, Pakistan, Nepal, Sri lanka, Malaysia, Philippines and Indonesia.
3. **Morphology:**
 - Leaf:** : Opposite, gland-dotted, coriaceous, oval or elliptic-oblong, acute intramarginal nerve present, extipulate.
 - Inflorescence:** Panicked cymes.
 - Flowers:** Greenish-white, scented. Calyx funnel-shaped. Petals 4 forming a calyptra, deciduous.
 - Androecium:** Stamens indefinite, many seriate, filaments filiform, anthers versatile.
 - Gynoeceium:** Ovary inferior, 2-celled, ovules many, style filiform.
 - Fruit:** a juicy purple berry with calyx remains at the apex, ovoid shaped, 1-seeded.
 - Seeds:** seeds are recalcitrant and do not dry or store well. May be planted loose together as wind break.
 - Flowering and Fruiting time:** February-April.
4. **Propagation:** By seed, stem cutting.
5. **Importance:**
 - a. Cultivated mainly for its edible fruits.
 - b. The seed powder is used in diabetes with good results.
 - c. Wood is used for agricultural implements, pots, carts, boats etc.
 - d. Used for the treatment of sore throat, bronchitis, asthma, thirst, biliousness, dysentery and ulcers.
 - e. Natural blood purifier due to richness of iron.
6. **Location:** avenue, playground,hostel surrounding,library-gymkhana.

PIPRI - BAT TREE



Ficus amplissima

Summary

Scientific Classification

Kingdom: Plantae

Division: Angiosperm

Class: Dicotyledonae

Order: Rosales

Family: Moraceae

Genus: Ficus

Species: F.amplissima

Scientific Name: Ficus amplissima Sm.

Common Names:

English: Bat tree.

Hindi: Pipri.

Kannada: Bilibasari Mara, Bilibasari, Bilibasuri.

Marathi: pimpl.

Description:

1. **Habit and habitat:** A large, glabrous tree. Terrestrial habitat.

2. **Distribution:**

3. **Morphology:**

Leaf: Alternate, ovate, apiculate-acuminate coriaceous, upper surface dotted with minute raised spots, base narrowed, 3-nerved, petiole with a gland at the apex on the underside.

Inflorescence: Hypanthodium globose, sessile, axillary, pubescent, androgynous, basal bracts 3, broadly ovate.

Flower: Perianth of 3, ovate tepals.

Androecium: Staminate florets sessile, monandrous, filament clavate, larger than the anther.

Gynoecium: ovary superior, bean shaped, 1 mm, white; style filiform, stigma cylindric.

Fruit and seeds: Small stalkless figs, light green in colour initially, ripening to syconium red or purple, with smooth achenes.

Flowering and Fruiting Time: November – January.

4. **Propagation:** Stem cuttings and by seeds.

5. **Importance:**

It is used to make pickles. Strong fibres are obtained from the bark and is used for making ropes. Wood is very hard and is used by the farmers to make tools.

6. **Location:** Library-Gymkhana.

Pangara - Indian Coral Tree



Erythrina indica

Summary

Scientific Classification

Kingdom: Plantae

Division: Magnoliophyta

Class: Dicotyledonae

Order: Fabales

Family: Fabaceae

Genus: Erythrina

Species: E.indica

Scientific Name: Erythrina indica Lam.

Common names

English : Indian Coral Tree, Lenten tree, Tiger claw.

Hindi: Pangara Pharhada, Farhad, Pangra, mahamed, mandar, pangra, paribhadra.

Kannada: Harawana ; Warjippe, Halivana, Haaluvana, homgaara.

Marathi: Pangara.

Discription

1. **Habit and Habitat:** Indian Coral Tree is a showy, spreading tree legume with brilliant red blossoms. This highly valued ornamental has been described as one of the gems of the floral world. It is a picturesque, broad and spreading, deciduous tree that can get 60-80 ft tall and spread 20-40 ft. It has many stout branches that are armed with black tiger's claw spines. There are curved spines (really more like prickles) on the long leaf stalks too.
2. **Distribution:** Erythrina comes from the Greek word 'eruthros' meaning red, alluding to the showy red flowers of the Erythrina species. native to the tropical and subtropical regions of eastern Africa, the Indian Subcontinent, northern Australia, and the islands of the Indian Ocean and the western Pacific Ocean east to Fiji Etymology.
3. **Morphology:**

Leaf: Leaves trifoliate, alternate, bright emerald-green, on long petioles 6-15 cm, rachis 5-30 cm long, prickly; leaflets smooth, shiny, broader than long, 8-20 by 5-15 cm, ovate to acuminate with an obtusely pointed end. Leaf petiole and rachis are spiny. The leaves are compound, with three diamond shaped leaflets, each about 6 in long.

Inflorescence: The inflorescence is an axillary, dense raceme, 10-40 cm long, held on a long petiole (7-25 cm), suited to birds hopping and poking into the flowers.

Flower: Flowers in bright pink to scarlet erect terminal racemes 15-20 cm long; stamens slightly protruding from the flower. It has dense clusters of scarlet or crimson flowers and black seeds. coral tree puts on a spectacular show with bright crimson flowers 2-3 in long in dense terminal clusters.

Androecium: stamens 10, monadelphous, 5-7 cm long, vexillar stamen basally connate with the tube for 1 cm, red.

Gynoecium: pistil with pubescent ovary and glabrous style.

Fruit: Fruit a cylindrical torulose pod, green, turning black and wrinkly as they ripen, thin-walled and constricted around the seeds.

Seeds: There are 1-8 smooth, oblong, dark red to almost black seeds per pod. The seeds are ellipsoid to reniform, 0.6-2 cm long x 0.5-1.2 cm broad, reddish brown in colour. Seed ellipsoid to reniform, 6-20 mm x 5-12 mm, smooth, glossy black, purplish or purplish red-brown.

Flowering and Fruiting time: April-May.

4. **Propagation:** Through seeds-Fresh seeds, and those harvested within 3 - 6 months of maturity, can be sown without any special treatment. Germination rates are generally high and are often 100%. Seeds over 6 months old may take between 12 - 18 months to germinate due to their hard seed coat which becomes tougher with age.

5. **Importance:**

- a. In small doses the seeds cause sedation, relaxation (especially of the muscles) and if taken before bedtime a long and deep sleep.
- b. All Erythrina species contain 'Erythrina alkaloids', which include erythrane, erythroidine and coralline.
- c. The leaves are laxative, diuretic, anthelmintic and are able to induce milk secretion in a new mother.
- d. The trees' leaves are also employed in the treatment of inflammatory swellings of lymph nodes, especially in the groins and armpits.
- e. The bark of the Erythrina Indica is used for fever, hepatitis, malaria, rheumatism, toothache, the treatment of epilepsy, and boils and fractures. One can also eat new leaves in curries and the adult leaves can make very useful cattle fodder.

6. **Location:** Library-Gymkhana area.

GULABI SIRIS - RAIN TREE



Albizia saman

Summary

Scientific Classification

Kingdom: Plantae

Division: Magnoliophyta

Class: Magnolipsida

Order: Fabales

Family: Fabaceae

Genus: Albizia

Species: A.saman

Scientific Name: Albizia saman (Jacq.)Merr.

Common names

English : Rain tree, Crow Bean tree; Monkey pod ,Coco tamarind, East Indian Walnut.

Hindi: Gulabi Siris, Vilaiti siris.

Kannada: Bagekayi, Bhagaya mara.

Marathi: Guango.

Discription

1. **Habit and Habitat:** Large, fast-growing, deciduous tree of up to 25 m tall, it has a very wide umbrella-shaped crown. Native to dry forests and

savannahs of tropical Americas. Widely introduced as landscape tree in tropical SE Asia and Hawaii.

2. **Distribution:** native to tropical South America but planted across the tropics.

3. **Morphology:**

Leaf: : Bipinnate, leaflets oval obtuse, oblique.

Inflorescence: Solitary globose heads.

Flowers: The flowers of Albizia saman are grouped in axillary head. The heads grow in racemes. The peduncle of the head is about 4-5 cm long.

CALYX: The calyx-tube is campanulatus, shortly lobed, light green-coloured and tomentose. **COROLLA:** The corolla is composed of 5 pink-coloured and tomentose petals. The petals are oblong and connate at the base, about 6-8 mm long and 2 mm wide.

Androecium: The androecium is composed of numerous stamens. The filaments are 2.5-3 cm long, connate at the base and pinkish at the tip. The stamens have tiny and globose anthers.

Gynoecium: The style is 2.5-3 cm long with a simple stigma. The ovary is about 5-6 mm long.

Fruit: The fruit is a fleshy pod, sweet to the taste and much relished by squirrels, horses and cattle.

Seeds: The seeds of Albizia saman are elliptic-oblong and compressed. They are about 1 cm long and 0.5 cm wide and dark brown-coloured. The seeds are embedded in the fruit pulp and there are many seeds per pod.

Flowering and Fruiting time: March-October.

4. **Propagation:** Through seeds.

5. **Importance:**

a.Planted on roads as a very rapid growing shade tree and for its attractive pink flowers.

b.Leaves and pods are used as fodder for cattle.

c.Due to the wood's resistance to fungus and termites, the wood is also used in making fine furniture.

6. **Location:** Distributed throughout campus.

SHISHAM - BLACK ROSEWOOD TREE



Dalbergia latifolia

Summary

Scientific Classification

Kingdom: Plantae

Division: Magnoliophyta

Class: Magnoliopsida

Order: Fabales

Family: Fabaceae

Genus: Dalbergia

Species: C.latifolia

Scientific Name: Dalbergia latifolia Roxb.

Common Names:

English: Black Rosewood, Bombay Blackwood, East Indian rosewood, Indian palisandre, Malabar rosewood.

Hindi: kala-shisham, vilayati shisham.

Kannada: beete.

Marathi: kalaruk, sisau.

Description:

1. **Habit and Habitat:** Black Rosewood is predominantly a single-stemmed deciduous tree with a dome shaped crown of lush green foliage. The tree can become 20-40 m tall, with a trunk diameter of 1.5-2 m. The bark is gray, thin with irregular short cracks, peeling in fibrous longitudinal flakes.
2. **Distribution:** It is native to low-elevation tropical monsoon forests of south east India.
3. **Morphology:**

Leaf: Alternately arranged leaves are odd-pinnate with 5-7 unequal sized leaflets originating from the same rachis. Leaflets are broadly blunt-tipped, dark green above and pale below. Alternate, compound dark green leaves measuring about 10 - 30 cm long, odd-pinnate with 5 - 7 unequal sized leaflets. The species name *latifolia* means broad-leaved.

Inflorescence: Inflorescence a terminal or axillary panicle 5–15 cm long, laxly branched, almost glabrous, many-flowered.

Flower: White flowers are borne in panicles, 0.5-1 cm long, in leaf axils. Flowers bisexual, papilionaceous, 6–8 mm long, distinctly pedicellate; calyx campanulate, c. 4 mm long, lobes shorter than tube, lower lobe longest, upper lobes fused.

Androecium: stamens 9, monadelphous; staminal tube 4 mm, split open one side.

Gynoecium: ovary stipitate, inferior, 5-7 mm, glabrous, 1-celled, ovules 1-few; style slender, incurved, glabrous; stigma capitate.

Fruit: Indehiscent brown pod measuring about 15 cm long and 1.5 - 2.5 cm wide, pointed at both ends. The thin pods are dispersed by wind.

Seeds: They contain 1-4 smooth brown seeds and do not open at maturity. Seeds kidney-shaped, 7–10 mm long.

Flowering and fruiting time: September–October and January–February respectively.

4. **Propagation:** For planting, seeds are sown in well-raised seedbeds of porous sandy loam or in polythene bags. Root and stem cuttings can also be used.

5. **Importance:**

Its applications in high-class furniture, cabinet making and as a decorative wood, Its used as a shade tree in agroforestry in India and Indonesia, for afforestation of eroded soils, and as a soil improver fixing nitrogen and providing mulch. The bark is used in traditional medicine in India, to treat diarrhoea, indigestion and leprosy, and as a vermifuge. It is suitable for high-grade plywood and, owing to its beautiful colour and figure, for decorative veneer. Because of its strength and durability, it is suitable for all kinds of constructional work, doors, window frames and wagon building. It is one of the most popular woods for carving and engraving. It is suitable for turnery and is excellent for high-class bentwood furniture, walking sticks, umbrella handles and other bentwood articles It is also used for making musical instruments and sports equipment.

6. **Location:** throughout Campus

NEEM-MARGOSA

Azadirachta indica



Summary

Scientific Classification

Kingdom: Plantae

Division: Magnoliophyta

Class: Dicotyledonae

Order: Sapindales

Family: Meliaceae

Genus: Azadirachta

Species: A.indica

Scientific Name: Azadirachta indica A. Juss.

Common Names:

English: Limbdo, Neem, Margosa.

Hindi: Neem.

Kannada: Turakabevu, Bevu, bevinagida.

Marathi: Kadu Limba, Nimbay.

Description:

1. **Habit and Habitat:** A tall evergreen tree. The bark is dark greyish on the outside and reddish brown inside, and has numerous oblique furrows.
2. **Distribution:** It is one of two species in the genus *Azadirachta*, and is native to the Indian subcontinent, i.e. India, Nepal, Pakistan, Bangladesh, Sri Lanka, and Maldives. It is typically grown in tropical and semi-tropical regions.

3. Morphology:

Leaf: Alternate, exstipulate, compound, imparipinnate; 7 - 15 shortly stalked pinnae are lanceolate, oblique, serrate, acuminate, unicostate reticulate.

Inflorescence: Axillary panicle.

Flower: Bracteate, actinomorphic, hermaphrodite, complete, hypogynous, scented, disciferous. Calyx made up of 5 sepals, gamosepalous, light

green, valvate. Corolla made up of 5 petals, polypetalous, imbricate.

Androecium: An annular disc present between petals and stamens. Androecium made up of 10, or 8 - 12 monadelphous, filaments unite to form a staminal tube seated at the base of annular disc, anthers dithecal, introrse.

Gynoecium: Gynoecium tricarpeal, syncarpous, superior, trilobular, two ovules in each locule, axile placentation, style simple, stigma trifid.

Fruit: Drupe.

Seeds: Fruit one - seeded.

Flowering and Fruiting time : February – August.

4. **Propagation:** Through seeds, Grafting, Cuttings.

5. **Importance:**

All parts are bitter and are used for various purposes. Twigs are used to brush teeth. The bark and leaves have medicinal properties. The neem oil is used in creams, hair lotions and soaps. The dried leaves are used to prevent insects and pests.

6. **Location:** Main entrance garden, Sports ground.

GULMOHAR - FLAME BUOYANT TREE



Delonix regia

Summary

Scientific Classification

Kingdom: Plantae

Division: Magnoliophyta

Class: Dicotyledonae

Order: Fabales

Family: Fabaceae

Genus: Delonix

Species: D.regia

Scientific Name: Delonix regia(Hook.) Raf.

Common names

English : Flame buoyant, fire tree, flame tree, Royal Poinciana.

Hindi: Gulmohar.

Kannada: Gentige hoo, kempu Torai.

Marathi: Gulmohar.

Discription

1. **Habit and Habitat:** Tall, deciduous trees with grey to pale-brown bark. Endemic to Madagascar's dry deciduous forest but has been introduced in to tropical and sub tropical regions worldwide.

2. **Distribution:** Native to northern and western Madagascar but has been introduced in to tropical and sub tropical regions worldwide.

3. **Morphology:**

Leaf: Pinnae 8-20 pairs, leaflets 12-30 pairs, oblong, glabrous or nearly so.

Inflorescence: Racemes.

Flower: Flowers in terminal, simple or branched racemes. Large showy, bisexual; CALYX : Four spreading petals and a larger fifth petal which has streaks of yellow and white; COROLLA: Five smaller sepals that are green on the outside and red on inside.

Androecium: 10 stamens with bright red stalk and yellowish brown anther.

Gynoecium: Ovary superior green, slightly velutinous, style glabrous stigma indistinct.

Fruit: Pods broadly linear, woody, dark-brown or reddish-brown, flat, beaked.

Seeds: Seeds oblong, glabrous, smooth, white or creamy-white, mottled brown.

Flowering and Fruiting time: March-August.

4. **Propagation:** Through seeds.

5. **Importance:**

a. The tree is mainly preferred for cultivation mainly on account of profusion of bright flowers.

b. The bark is used as a febrifuge.

c. The tree yields a gum, which is used medicinally.

6. **Location:** Throughout college campus.

NEELI GULMOHAR - FERN TREE



Jacaranda mimosifolia

Summary

Scientific Classification

Kingdom: Plantae

Division: Magnoliophyta

Class: Magnoliopsida

Order: Lamiales

Family: Bignoniaceae

Genus: Jacaranda

Species: J.mimosifolia

Scientific Name: Jacaranda mimosifolia D.Don.

Common Names:

English: Fern tree.

Hindi: Neeli Gulmohar.

Description:

1. **Habit and Habitat:** Deciduous or evergreen tree, 5-15m tall. Terrestrial habitat.
2. **Distribution:** Warm parts of eastern Australia, southern Africa, Hawaii, south – eastern USA and outside its native range in southern South America.

Peculiar characters: spectacular lavender blue blooms leads to its popularity. Is fast growing and leads resprouts easily if damaged.

3. Morphology:

Leaf: compound leaves (bi-pinnately compound), 18 inch long, with leaflets little more than 1cm (0.39in) long.

Inflorescence: In clusters.

Flower: Beautiful, lavender blue, tubular, 2.5cm long, terminal clusters with often the entire tree in flower, Appear in spring and early summer and last for upto two months.

Fruit: Round, flat, reddish brown, woody capsule, 4-5cm in diameter containing numerous seeds.

Fruiting season: late summer and early rainy seasons.

Seeds: Woody seed pods that contain flat numerous small winged seeds.

4. **Propagation:** formation of thickets of seedlings beneath planted trees from which the species expand.

5. **Importance:**

Its main value is as an ornamental tree. It has also medical properties.

Used to decorate Christmas tree and dried arrangements.

6. **Location:** Avenue, Office, Library – Gymkhana.

AMM - MANGO TREE



Mangifera indica

Summary

Scientific Classification

Kingdom: Plantae

Division: Magnoliophyta

Class: Dicotyledonae

Order: Sapindales

Family: Anacardiaceae

Genus: Mangifera

Species: L.indica

*Scientific Name: Mangifera indica*L.

Common names

English : Indian mango.

Hindi: aam, ambo, amra, amuva, anb-ka-per, kairi, keri.

Kannada: Mavinamara, Maavu.

Marathi: Amba.

Discription

1. **Habit and Habitat:** Tree is medium to large , evergreen with symmetrical, rounded canopy ranging from low and dense to upright and open. Terrestrial habitat.
2. **Distribution:** Native to tropical Asia and cultivated in the Indian subcontinent for over 4000 years and is now found naturalized in most tropical countries.The natural distribution of M. indica is in the Indo-Malesian region, specifically India and Myanmar. Wild populations can be found in the Assam-Chittagong Hills in India and in Myanmar.
3. **Morphology:**

Leaf: : Simple, alternate, exstipulate, leathery, oblong-lanceolate to linear. Depending on variety the shape of the leaves are variable.

Inflorescence: The inflorescence is branched panicle borne at shoot terminals.

Flowers: Flowers are either male or hermaphrodite both borne within a single inflorescence, yellowish-green in colour in terminal panicles; pedicels jointed; bract deciduous.Calyx: Sepals five ovate-lanceolate, concave, finely pubescent.Corolla:Petal five elliptic-lanceolate to obovate-lanceolate.

Androecium: Presence of stamens and staminodes, altogether five in number, of which usually one or rarely two are fertile and the rest are sterile.

Gynoecium: ovary sessile, superior, oblique, 1-celled, ovule pendulous;

style lateral with simple stigma.

Fruit: The mango fruit is a large, fleshy drupe, containing an edible mesocarp of varying thickness.

Seeds: Mango seeds are solitary, large and flat with ovoid oblong in shape and surrounded by the fibrous endocarp at maturity. The testa and tegumen are thin and papery. Embryos are dicotyledonous.

Flowering and Fruiting time: February -June.

4. **Propagation:** By seed.
5. **Importance:** a. Extensively cultivated everywhere for its fine fruits.
b. The wood is used as timber, and dried twigs are used for religious purposes.
6. **Location:** Play ground, Hostel surrounding, Office area, Parking Area, Front yard of Chemistry staff room, Library - gymkhana Area, New building area.

KANIAR - BUTTERFLY TREE



Bauhinia purpurea

Summary

Scientific Classification

Kingdom: Plantae

Division: Tracheophyta

Class: Magnoliposida

Order: Fabales

Family: Caesalpiniaceae

Genus: Bauhinia

Species: B.purpurea

Scientific Name: Bauhinia purpurea L.

Common names

English: Butterfly tree, Pink butterfly tree, Purple bauhinia, Purple butterfly tree, Purple orchid tree

Hindi: Kaniar

Kannada: Devakanchan, Basavana Paada

Marathi: Raktakanchan

Discription

1. **Habit and Habitat:** A small to medium - sized tree. The Purple Orchid Tree is an exotic tropical tree that blooms over a long period of time. The beautiful & fragrant, classic, Orchid-like flowers of *Bauhinia purpurea* makes this small tree, native to India.
2. **Distribution:** Native to South China (which includes Hong Kong) and Southeast Asia. India.
3. **Morphology:**
 - Leaf:** Simple, roundish, as broad as long, divided into 2 obtuse lobes, stipules long triangular, base cordate.
 - Inflorescence:** Racemes.
 - Flower:** Showy, fragrant, in terminal and axillary corymbose racemes, bracts triangular, bracteoles 2, below the middle. Calyx hairy, dilated

upwards, divided at the apex into 5 short teeth. Petals oblanceolate, long-clawed, rosy purple with veins.

Androecium: Fertile stamens 3, others reduced to staminodes, filaments as long as petals.

Gynoecium: Ovary stalked, style long, stigma oblique, peltate.

Fruit: Pod linear flat, pointed, broad, subwoody, glabrous, greenish tinged purple till ripe.

Seeds: 12 - 15, flat.

Flowering and Fruiting time : September - November.

4. **Propagation:** by seeds.

5. **Importance:**

a. Cultivated in the gardens.

b. The tree is also known to yield gum.

c. The leaves are used as cattle fodder and are eaten as vegetable or pickle.

d. The bark is used by the tanning industry.

e. It is also used to wash ulcers.

f. The wood is good for making agricultural implements.

Location: opposite to library.

CHIKOO - SAPOTA TREE



Manilkara zapota

Summary

Scientific Classification

Kingdom: Plantae

Division: Angiospermae

Class: Dicotyledonae

Order: Ebenales

Family: Sapotaceae

Genus: Manilkara

Species: M.zapota

Scientific Name: Manilkara zapota (L.) P.Royen.

Common Names:

English: Sapota, sapodilla plum.

Hindi: Chikoo.

Kannada: Chikku.

Marathi: Chiku.

Description:

1. **Habit and Habitat:** A medium sized tree with numerous branching. Terrestrial habitat.

2. **Distribution:** Chikoo is native to Central America. Global Distribution - India: Andaman & Nicobar Island, Assam, Madhya Pradesh; Tropical America. Local Distribution – Bongaigaon.

3. **Morphology:**

Leaf: are highly ornamental, evergreen, glossy, alternate, spirally clustered at the tips of the forked twigs; elliptic, pointed at both ends, firm, 7.5-11.25 cm long and 2.5-4 cm wide.

Flower: are small and bell-like, with 3 brown-hairy outer sepals and 3 inner sepals enclosing the pale-green corolla and 6 stamens. They are borne on slender stalks at the leaf bases.

Fruit: fruit may be nearly round, oblate, oval, ellipsoidal, or conical; varies from 2 to 4 in 5-10 cm in width. When immature it is hard, gummy

and very astringent. Though smooth-skinned it is coated with a sandy brown scurf until fully ripe. The flesh ranges in color from yellowish to light- or dark-brown or sometimes reddish-brown; may be coarse and somewhat grainy or smooth; becomes soft and very juicy, with a sweet flavor resembling that of a pear. Some fruits are seedless, but normally there may be from 3 to 12 seeds which are easily removed as they are loosely held in a whorl of slots in the center of the fruit. They are brown or black, with one white margin; hard, glossy; long-oval, flat, with usually a distinct curved hook on one margin; and about 2 cm long.

Seed: sapodilla trees yield fruit twice a year Each fruit contains one to six seeds. The seeds are hard, glossy, and black, resembling beans.

Flowering: August - October.

Fruit ripening: January onwards.

4. **Propagation:** By seeds.

5. **Importance:**

Medicinal, the wide array of vitamins, minerals and antioxidants found in the sapota fruit makes it an amazing choice for healthy and glowing skin. Thus, this article will be incomplete without talking about the skin benefits of this tasty fruit.

6. **Location:** Botanical Garden.

ASWATTHA - PEEPAL TREE



Ficus religiosa

Summary

Scientific Classification

Kingdom: Plantae

Division: Magnoliophyta

Class: Magnolipsida

Order: Rosales

Family: Moraceae

Genus: Ficus

Species: F.religiosa

Scientific Name: Ficus religiosa L.

Common names

English : Sacred Fig Tree, Bodhi Tree, Pippala Tree, Peepul Tree, Peepal Tree Or Ashwattha Tree.

Hindi: Aswattha.

Kannada: Aralimara.

Marathi: Pimpal.

Discription

1. **Habit and Habitat:** Peepal is a large deciduous tree growing up to 30 m high. It has a fluting and straight trunk and a spreading crown. *Ficus religiosa* has no aerial roots. Peepal occurs naturally in submontane forest, and is grown as an ornamental both within its native range and in places where it has been introduced.
2. **Distribution:** India, Sri Lanka, Pakistan, Bangladesh, Myanmar, Nepal, Bhutan, South-East Asia, South China (Caribbean and North America).
3. **Morphology:**
Leaf: : Leaves alternate, spirally arranged and broadly ovate, glossy, coriaceous (leathery), dark green leaves, with unusual tail-like tips, pink when young, stipulate, base-cordate. Petioles is slender and long. Galls

on leaves.

Inflorescence: The flowers of *Ficus religiosa* are enclosed within a fleshy receptacle referred to as the fig. What we think of as a fruit is an inflorescence, a flower-bearing structure called syconium.

Flowers: Flowers axillary sessile, unisexual. Male, gall, and female flowers within same fig. **MALE FLOWER:** few, near apical pore, sessile; calyx 2- or 3-lobed, margin revolute; stamen 1; filament short. **GALL FLOWER:** pedicellate; calyx 3- or 4-lobed; ovary globose, smooth; style short; stigma enlarged, 2-lobed. **FEMALE FLOWER:** sessile; calyx 4-lobed, broadly lanceolate; ovary globose, smooth; style thin; stigma narrow.

Fruit: Fruits are borne axillary in pairs, sometimes single, subglobose, measuring 1-1.5 cm in diameter. Fruits turn red or purple when ripe.

Flowering and Fruiting time: February-June.

4. **Propagation:** In places where the pollinator wasp is not present, trees are propagated from cuttings. It can reproduce by cuttings or by seed, but requires a species-specific pollinator wasp in order to produce viable seeds.
5. **Importance:**
 - a. The bark contains tannin and it is occasionally used for tanning and for dyeing. The bark of *Ficus religiosa* is astringent, antiseptic, alterative, laxative, haemostatic, vaginal disinfectant. It is used in diabetes, diarrhoea, leucorrhoea, menorrhagia, nervous disorders and in skin diseases..latex obtained from the plant is used for making varnishes.
6. **Location:** in front of New Building, Sports Ground.

MARI - FISH TAIL PALM



Caryota urens

Summary

Scientific Classification

Kingdom: Plantae

Division: Magnoliophyta

Class: Liliopsida

Order: Arecales

Family: Arecaceae

Genus: Caryota

Species: C.urens

Scientific Name: Caryota urens L.

Common Names:

English: Elephant's palm, Toddypalm, Fish-tail palm, Indian sagopalm, Jaggerypalm, Toddy palm, Sago/ Fish tail palm.

Hindi: Mari.

Marathi: Sur-maad, Bherli-maad.

Description:

1. **Habit and Habitat:** Palms up to 15 m tall. Evergreen forests, also in the plains. Tall unbranched palm with peristant scars of leaf bases.
2. **Distribution:** naturally found from sea level to 300 m, in Myanmar (Burma), India, and Sri Lanka where it grows on plateau or in rain forest clearings.

3. **Morphology:**

Leaf: compound, bipinnate, to 5 m long; pinnae 5-7 pairs, to 1.5 m long, leaflets lamina 25 x 10 cm, cuneiform, apex premorse.

Inflorescence: spadices, shortly peduncled, much branched; spathes 3-5; spikelets closely arranged on the rachillae.

Flower: unisexual, Monoecious.

Fruit: Berry, stalked, ovoid or globose.

Seed: 1-2 seeded, ruminant.

Flowering and fruiting: January-April.

4. **Propagation:** through Seeds.

5. **Importance:**

From the pith a good variety of “sago” is obtained which is highly nutritious. The fibres are manufactured into ropes, brushes, brooms, baskets. Toddy is also obtained from this palm. Terminal bud is edible. The sap extracted from the inflorescence of the plant is used to make sugar and alcoholic beverages. The root is used for treating tooth ailments. The bark and seed are used to treat boils. It is used to make a wide range of products, but especially brooms, brushes, ropes, baskets etc.

6. **Location:** Botanical garden, Main entrance garden, front yard of chemistry staffroom, Sports ground.

MARI - FISH TAIL PALM



Caryota urens

Summary

Scientific Classification

Kingdom: Plantae

Division: Magnoliophyta

Class: Liliopsida

Order: Arecales

Family: Arecaceae

Genus: Caryota

Species: C.urens

Scientific Name: Caryota urens L.

Common Names:

English: Elephant's palm, Toddypalm, Fish-tail palm, Indian sagopalm, Jaggerypalm, Toddy palm, Sago/ Fish tail palm.

Hindi: Mari.

Marathi: Sur-maad, Bherli-maad.

Description:

1. **Habit and Habitat:** Palms up to 15 m tall. Evergreen forests, also in the plains. Tall unbranched palm with persistent scars of leaf bases.
2. **Distribution:** naturally found from sea level to 300 m, in Myanmar (Burma), India, and Sri Lanka where it grows on plateau or in rain forest clearings.

3. **Morphology:**

Leaf: compound, bipinnate, to 5 m long; pinnae 5-7 pairs, to 1.5 m long, leaflets lamina 25 x 10 cm, cuneiform, apex acuminate.

Inflorescence: spadices, shortly peduncled, much branched; spathes 3-5; spikelets closely arranged on the rachillae.

Flower: unisexual, Monoecious.

Fruit: Berry, stalked, ovoid or globose.

Seed: 1-2 seeded, ruminant.

Flowering and fruiting: January-April.

4. **Propagation:** through Seeds.

5. **Importance:**

From the pith a good variety of “sago” is obtained which is highly nutritious. The fibres are manufactured into ropes, brushes, brooms, baskets. Toddy is also obtained from this palm. Terminal bud is edible. The sap extracted from the inflorescence of the plant is used to make sugar and alcoholic beverages. The root is used for treating tooth ailments. The bark and seed are used to treat boils. It is used to make a wide range of products, but especially brooms, brushes, ropes, baskets etc.

6. **Location:** Botanical garden, Main entrance garden, front yard of chemistry staffroom, Sports ground.

RATANJOT - BARBADOS TREE



Jatropha curcas

Summary

Scientific Classification

Kingdom: Plantae

Division: Magnoliophyta

Class: Dicotyledonae

Order: Malpighiales

Family: Euphorbiaceae

Genus: Jatropha

Species: J. curcas

Scientific Name: Jatropha curcas L.

Common names

English : Barbados nut tree.

Hindi: Jamal ghota, Ratanjot.

Kannada: Kananeranda, Doddaharalu.

Marathi: Mogli Erand.

Discription

1. **Habit and Habitat:** *Jatropha curcas* is a perennial, monoecious shrub or small tree up to 6 m high; bark pale brown, papery, peeling; slash exudes a copious watery latex. *J. curcas* grows as a weed in tropical and

sub-tropical environments and can be found in disturbed sites, pastures, open woodlands, waste areas, abandoned gardens, and along roadsides.

2. **Distribution:** Though native to America, the species is almost pantropical now, widely planted as a medicinal plant which soon tends to establish itself.

3. **Morphology:**

Leaf: Leaves alternately appear with a petiole (3–20 cm long) and a blade broadly ovate in outline, usually shallowly 5-lobed.

Inflorescence: The inflorescences are terminal or axillary umbel-like cymes, often paired, with a solitary female flower terminating each major axis and many male flowers on lateral branches.

Flower: Flowers are unisexual.

Androecium: Male flowers: sepals 5, approximately 4 mm, connate at base; petals oblong, green-yellow, approximately 6 mm, connate to middle, hairy inside; disk glands 5, nearly terete; stamens 10; outer 5 filaments free, inner filaments connate in lower part.

Gynoecium: Female flowers: pedicels elongate; sepals free, approximately 6 mm; petals and disk glands as in male; ovary 3-locular, glabrous; styles bifid at apex.

Fruit: Fruits are broadly ellipsoid capsules 2.5–3 cm × ca. 2 cm, smooth-skinned, initially fleshy and green, turning yellow and eventually dry and black and are 3-seeded.

Seeds: Seeds are ellipsoid, 1–2 cm long, mottled black and coarsely pitted.

Flowering and Fruiting time: Flowering from April-July. Fruiting April onwards.

4. **Propagation:** Grows readily, from cuttings or seeds.

5. **Importance:**

Environmental

a. Boundary, barrier or support

b. Erosion control or dune stabilization

- c.Host of pest
- e.Soil conservation
- f.Soil improvement

Fuels

- a.Biofuels

Materials

- a.Dye/tanning
- b.Dyestuffs
- c.Lipids
- d.Poisonous to mammals
- f.Wax

6. **Location:** Botanical Garden.

PINK TRUMPET TREE



Tabebuia impetiginosa

Summary

Scientific Classification

Kingdom: Plantae

Division: Angiospermae

Class: Dicotyledonae

Order: Lamiales

Family: Bignoniaceae

Genus: Tabebuia

Species: T. impetiginosa

Scientific Name: Tabebuia impetiginosa (Mart. ex DC.) Standl.

Common names

English: Pink Trumpet Tree.

Description

1. **Habit and Habitat:** The pink lapacho is a rather large deciduous tree, with trunks sometimes reaching 8 dm width and 30 m height. Usually a third of that height is trunk, and two thirds are its longer branches. It has a large, globous, but often sparse canopy.
2. **Distribution:** : Native tree of family Bignoniaceae of the Americas, distributed from northern Mexico south to northern Argentina.also distributed in Indian subcontinent.

3. **Morphology:**

Leaf: Leaves are opposite and petiolate, 2 to 3 inches long, elliptic and lanceolate, with lightly serrated margins and pinnate venation. The leaves are palmately compound with usually 5 leaflets.

Inflorescence: Tabebuia always has a dichotomously branched inflorescence; never a central rachis as in Roseodendron.

Flowers: The flower is large, tubular shaped, its corolla is often pink or magenta, though exceptionally seen white, about 2 inches long.

Androecium: There are four stamens and a staminode.

Gynoecium: The ovary is linear, bilocular with many ovules biseriate in each locule.

Fruit: The fruit consists of a narrow dehiscent capsule.

Seeds: several winged seeds.

Flowering and Fruiting time: December to January.

4. **Propagation:** by seeds.
5. **Importance:** It is also used as a honey plant, and widely planted as ornamental tree in landscaping gardens, public squares and boulevards due to its impressive and colorful appearance as it flowers. Well-known and popular, it is the national tree of Paraguay. It is also planted as a street tree in cities of India, like in Bangalore. It is also used as Ayurvedic medicine for treatment of various disease.
6. **Location:** throughout Campus.

MAHUA - MOWRA TREE



Madhuca longifolia

Summary

Scientific Classification

Kingdom: Plantae

Division: Angiospermae

Class: Dicotyledonae

Order: Ebenales

Family: Sapotaceae

Genus: Madhuca

Species: M.longifolia

Scientific Name: Madhuca longifolia (J.Koenig ex L.) J.F.Macbr.

Common Names:

English: Mowra butter tree.

Hindi: Mahua.

Kannada: Ippe.

Description:

1. **Habit and Habitat:** large tree with a short trunk and rounded crown.

Terrestrial habitat.

2. **Distribution:** Throughout Assam.

3. **Morphology:**

Leaf: Elliptic, about 10 to 11 inches long, bluntly acuminate, acute at base, coriaceous, lateral nerves about 12 pairs, parallel and prominent below.

Inflorescence: Dense fascicles near the ends of branches.

Flower: Buds long, pointed, rufous-hairy. Calyx 4-lobed, divided nearly to the base, the 2 outer subvalvate and enclosing the 2 inner. Corolla fleshy, yellow, lobes 7-9, erect, ovate-lanceolate, caducous.

Androecium: Stamens inserted on the tube of the corolla, 24-26 in 3 rows, anthers hairy at the back.

Gynoecium: Ovary red-hairy style long-exserted, hairy at the base.

Fruit: Berry ovoid, fleshy, greenish, 1-4 seeded.

Seed: Presence of 1-4 seeds.

Flowering and Fruiting Time: March – April.

4. **Propagation:** Direct sowing of seeds.

5. **Importance:**

Very useful tree. The flowers are distilled for the preparation of country liquor. The seeds are crushed to yield an oil called “vegetable butter”

which is extensively used for soapmaking and also edible, and used for adulterating ghee. The oil-cake is used to poison fish.

6. **Location:** Botanical Garden.

KADAMB - KAIM TREE



Mitragyna parvifolia

Summary

Scientific Classification

Kingdom: Plantae

Division: Angiospermae

Class: Dicotyledonae

Order: Gentianales

Family: Rubiaceae

Genus: Mitragyna

Species: M.parvifolia

Scientific Name: Mitragyna parvifolia (Roxb.) Korth.

Common Names:

English: Kaim, True Kadamb.

Hindi: Guri, Kaim, Kadamb.

Kannada: Sanna Kadamba, Kongu, Nira Kadamba.

Marathi: Kalam.

Description:

1. **Habit and Habitat:** Terrestrial, Deciduous trees, to 25 m high, bark 20-25 mm thick, grey-black, smooth exfoliations thin, irregular, fibrous; blaze pink, traversed by whitish rays; branchlets subterete.
2. **Distribution:** E. Asia - India, Sri Lanka, Nepal, Bangladesh, Myanmar, Andaman and Nicobar Islands.
3. **Morphology:**

Leaves: Leaves simple, opposite, decussate; stipules 1 cm long, interpetiolar, ovate-oblong or obovate, foliaceous, membranous, cauducous; petiole 10-40 mm long, stout, grooved above, glabrous; lamina 5-16 cm x 2.5-10 cm, variable, ovate, orbicular, elliptic or ovate-oblong, base obtuse, attenuate, acute or subcordate, apex obtuse or round; margin entire, glabrous, coriaceous; lateral nerves 6-10 pairs, pinnate, prominent beneath; intercostae scalariform, slender; domatia present.

Flowers: Flowers bisexual, creamy white, 10-12 mm long, in terminal heads; peduncle supported by a pair of bract like oblong leaves; bracteoles small, subulate; calyx tube short, truncate, rim even; corolla tube funnel shaped, 8 mm long, villous inside, lobes 4-5 oblong, reflexed.

Androecium: stamens 5, attached towards the apex of corolla tube; anthers apiculate.

Gynoecium: ovary 2-celled, inferior, ovules many; style filiform; stigma mitriform, hollow at base.

Fruit: Fruit capsules in globose heads, 2-3 mm long, ribbed, separating in to two cocci, brown.

Seeds: seeds many, small and 10-ribbed.

Flowering and fruiting seasons: March-August.

4. **Propagation:** Seed. The plant is difficult to propagate in the nursery.

5. Importance:

The bark and roots are used to treat fever, colic, muscular pain, burning sensation, poisoning, gynecological disorders, cough, and edema, and as an aphrodisiac. The fruit juice augments the quantities of breast milk in lactating mothers and also works as lactodepurant. The light pinkish-brown wood is even-grained, moderately hard and durable if not exposed to the wet. It is easily worked and polishes well. A useful wood, esteemed for many purposes, it is used in construction, furniture making, agricultural implements, combs, cups, spoons, plates and for turned and carved articles.

6. Location: Botanical Garden.

PERU - GUAVA TREE



Psidium guajava

Summary

Scientific Classification

Kingdom: Plantae

Division: Angiosperm

Class: Dicotyledonae

Order: Myrtales

Family: Myrtaceae

Genus: Psidium

Species: P.guajava

Scientific Name: Psidium guajava L.

Common Names:

English: Guajava, Guava, Common guava.

Hindi: Amrood.

Kannada: Peru, Pearaley.

Marathi: Peru, Jamba, Perunjaams.

Description:

1. **Habit & Habitat:** A Small tree with bark white, thin peeling off young branches 4-angled. *Psidium guajava* is a large dicotyledonous shrub, or small evergreen tree, generally 3-10 m high, many branches. Agricultural areas, forest edges, natural forests, riparian zones (banks of watercourses), ruderal/disturbed, scrub/shrublands in higher rainfall areas.
2. **Distribution:** Australia, New Zealand, tropical and temperate Asia, tropical and southern Africa and many oceanic islands with warm climates.
3. **Morphology:**

Leaf: opposite, simple; stipules absent, petiole short, 3-10 mm long; blade oblong to elliptic, 5-15 x 4-6 cm, apex obtuse to bluntly acuminate, base rounded to subcuneate, margins entire, somewhat thick and leathery, dull grey to yellow-green above, slightly downy below, veins prominent, gland dotted.

Inflorescence: axillary, 1- to 3-flowered, pedicles about 2 cm long, bracts 2, linear.

Flower: hermaphroditic, solitary or 2-4 together in leaf axils. Calyx splitting irregularly into 2-4 lobes, whitish and sparsely hairy within. Each flower has four or five green sepals (6-15 mm long) that are fused together at the base. Four or five white petals.

Androecium: Stamens many, free, inserted on the calyx-limb.

Gynoecium: Ovary inferior, multicellular, ovules many, stigma capitate.

Fruit: A fleshy berry, many seeded.

Flowering season: May –June.

Fruiting season: winter season.

Seeds: numerous, cream to brown, kidney-shaped or flattened seeds.

4. **Propagation:** Seed propagation can also be a way for propagation but it is a slow process. Cutting and grafting the stem are ideal methods for propagation of plant.

5. **Important:**

Cultivated for its edible fruits from which jam, jellies etc. are prepared. The roots, bark, leaves and immature fruits, because of their astringency, are commonly employed to halt gastroenteritis, diarrhea and dysentery, throughout the tropics. Its wood can be used to make poles, fenceposts and tool handles, in handicrafts and for charcoal and firewood.

6. **Location:** Botanical Garden.

SHISHAM - BLACK ROSEWOOD TREE



Dalbergia latifolia

Summary

Scientific Classification

Kingdom: Plantae

Division: Magnoliophyta

Class: Magnoliopsida

Order: Fabales

Family: Fabaceae

Genus: Dalbergia

Species: C.latifolia

Scientific Name: Dalbergia latifolia Roxb.

Common Names:

English: Black Rosewood, Bombay Blackwood, East Indian rosewood, Indian palisandre, Malabar rosewood.

Hindi: kala-shisham, vilayati shisham.

Kannada: beete.

Marathi: kalaruk, sisau.

Description:

1. **Habit and Habitat:** Black Rosewood is predominantly a single-stemmed deciduous tree with a dome shaped crown of lush green foliage. The tree can become 20-40 m tall, with a trunk diameter of 1.5-2 m. The bark is gray, thin with irregular short cracks, peeling in fibrous longitudinal flakes.
2. **Distribution:** It is native to low-elevation tropical monsoon forests of south east India.
3. **Morphology:**

Leaf: Alternately arranged leaves are odd-pinnate with 5-7 unequal sized leaflets originating from the same rachis. Leaflets are broadly blunt-tipped, dark green above and pale below. Alternate, compound dark green leaves measuring about 10 - 30 cm long, odd-pinnate with 5 - 7

unequal sized leaflets. The species name *latifolia* means broad-leaved.

Inflorescence: Inflorescence a terminal or axillary panicle 5–15 cm long, laxly branched, almost glabrous, many-flowered.

Flower: White flowers are borne in panicles, 0.5-1 cm long, in leaf axils. Flowers bisexual, papilionaceous, 6–8 mm long, distinctly pedicellate; calyx campanulate, c. 4 mm long, lobes shorter than tube, lower lobe longest, upper lobes fused.

Androecium: stamens 9, monadelphous; staminal tube 4 mm, split open one side.

Gynoecium: ovary stipitate, inferior, 5-7 mm, glabrous, 1-celled, ovules 1-few; style slender, incurved, glabrous; stigma capitate.

Fruit: Indehiscent brown pod measuring about 15 cm long and 1.5 - 2.5 cm wide, pointed at both ends. The thin pods are dispersed by wind.

Seeds: They contain 1-4 smooth brown seeds and do not open at maturity. Seeds kidney-shaped, 7–10 mm long.

Flowering and fruiting time: September–October and January–February respectively.

4. **Propagation:** For planting, seeds are sown in well-raised seedbeds of porous sandy loam or in polythene bags. Root and stem cuttings can also be used.

5. **Importance:**

Its applications in high-class furniture, cabinet making and as a decorative wood, Its used as a shade tree in agroforestry in India and Indonesia, for afforestation of eroded soils, and as a soil improver fixing nitrogen and providing mulch. The bark is used in traditional medicine in India, to treat diarrhoea, indigestion and leprosy, and as a vermifuge. It is suitable for high-grade plywood and, owing to its beautiful colour and figure, for decorative veneer. Because of its strength and durability, it is suitable for all kinds of constructional work, doors, window frames and wagon building. It is one of the most popular woods for carving and engraving. It is suitable for turnery and is excellent for high-class

bentwood furniture, walking sticks, umbrella handles and other bentwood articles It is also used for making musical instruments and sports equipment.

6. Location: throughout Campus.

NARIYAL - COCONT TREE



Cocos nucifera

Summary

Scientific Classification

Kingdom: Plantae

Division: Magnoliophyta

Class: Liliopsida

Order: Arecales

Family: Arecaceae (Palmae)

Genus: Cocos

Species: C.nucifera

*Scientific Name: Cocos nucifera*L.

Common names

English: Coconut tree

Hindi: Nariyal

Kannada: Tenginkayi

Marathi: Naral

Discription

1. **Habit and Habitat:** A tall or a large palm growing to 30m tall.Terrestrial habitat.
2. **Distribution:** cosmopolitan in distribution.Native to southeast Asia, while others claim its origin is in northwestern South America.Also native to the coastal regions of tropical Asia.
3. **Morphology:**

Leaf: Leaves very large consisting of many leaflets, linear-lanceolate and pinnate forming a crown on the top.

Inflorescence: Spadix type of inflorescence.

Flower: Flowers are in large spadix.The flowers of the coconut palm are polygamomonoecious with both male and female flowers in the same inflorescence. Consists of boat-shaped spathe. Presence of 3 Sepals and 3 petals.

Androecium: 6 stamens , valvate in nature.

Gynoecium: ovary 3-celled but only one carpel develops into the fruit.

Fruit: Large fibrous drupe, obovoid in shape.

Seeds: Seed with white endosperm, brown testa and full of liquid endosperm- the coconut milk.

Flowering and Fruiting time : All the year round.
4. **Propagation:** by seeds.
5. **Importance:**

a.The fluid of tender fruit of Cocos nucifera (kalpa vriksha - coconut

palm) is sweet and refreshing drink. The boiled young seedlings of *Borassus flabellifer* (palmyra palm) are edible and its fruits are eaten raw.

b. The oil obtained from dried endosperm of *Cocos nucifera* is called coconut oil. It is used for cooking, for the preparation of vegetable fat (ghee) and as hair oil. The oil obtained from fleshy mesocarp of *Elaeis guineensis* is called palm oil. It is mainly used for the manufacture of soap.

c. A sugary solution obtained by cutting young peduncles of *Cocos nucifera*, *Borassus flabellifer* and *Phoenix sylvestris* (Eechai) is used for manufacturing jaggery. This sugary solution on fermentation yields the beverage called 'toddy'. This sap is also used for manufacturing a number of commercially useful products such as palm sugar, alcohol and vinegar.

d. Dense stem wood of *Borassus flabellifer* and *Cocos nucifera* is used as timber.

e. *Adonidia merillii* (Manila palm) and *Caryota urens* (wine palm).

6. **Location:** Anant Manohar Garden, Botanical Garden, Main Entrance Garden.

RAMPHAL - BULLOCK'S HEART



Annona reticulata

Summery

Scientific classification :-

Kingdom : Plantae Clade : Angiosperms Clade : Magnoliids Order :

Magnoliales Family : Annonaceae Genus : Annona Species: A. Reticulate

Common name :- English : Bullock's heart, Netted custard apple,

Wild-sweetsop Hindi :Ramphal Kannada :Ramaphala Marati :Ramphal

Discription:-

1. Habit and Habitat :3-5m small tree with spreading branches, young branches hairy. Cultivated and naturalized.
2. Distribution : Karnataka, Maharashtra, Assam, Bihar, Manipur, Odisha, Uttar Pradesh, Tamil Nadu, America, Brazil, Mexico.
3. Morphology:- Leaf:Glabrous ovate-lanceolate, minutely pellicid-punctate, petolate, rounded at the base, transparent dots present, upper surface without hairs, the lower surface with a few scattered hairs. Inflorescence:Often solitary, axillary, sometimes cauliflorous in groups. Flower: 2-4 on lateral, glabrous pedicels. Sepals 3, small, ovate, acute, hairy. Petals 3, fleshy, triangular and hairy on both sides. Sometimes 3 small, minute inner petals are present. Stamens and carpels like above. Androceium: Numerous stamens, crowded, white less than 1.6cm long. Gynoceium: Ovary light green. Styles white, crowded on the raised axis. Fruit : 10-15cm across, yellowish brown, sub-globose or heart-shaped, fleshy composite berry with pentangular lightly marked areoles. Seeds: smooth and blackish
4. Flowering and Fruiting Time: September – November, December-May
5. Propagation: By seeds. Importance: Fruit is eaten when ripe. The leaves are used in a decoction to treat dysentery and urinary track infection. In traditional Indian medicine they are crushed and applied to wounds. The leaves are rubbed on floors and put in hens nests to repel lice. Employed in the treatment Epilepsy, dysentery, cardiac problem, parasite and worm infections, constipation, haemorrhage, bacterial infection, dysuria, fever, ulcer and as an insecticide.

6. Bark is a powerful astringent and used as a tonic. Leaves used for Helminthiasis treatment.
7. Location: botanical garden , near ranade hall.

RAMATANA CHAMPA - GOLDEN CHAMPA TREE



Ochna obtusata

Summary

Scientific Classification

Kingdom: Plantae

Division: Angiospermae

Class: Dicotyledonae

Order: Malpighiales

Family: Ochnaceae

Genus: Ochna

Species: O. obtusata

Scientific Name: Ochna obtusata DC.

Common Names:

English: Golden champa.

Hindi: Ramdhan champak.

Kannada: Ramatana champaka.

Description:

1. **Habit and Habitat:** A woody small tree with terrestrial habitat.
2. **Distribution:** Native to East India. Also distributed in South Africa, Western Ghats, and Maharashtra.
3. **Morphology:**
 - Leaf:** Simple, alternate, stipulate with long petioles.
 - Inflorescence:** Axillary or lateral racemes.
 - Flower:** yellow in colour, pedicels upto 2.5cm long.
 - Androceium:** Stamens many, anthers long.
 - Fruit:** A drupe.
 - Seeds:** Bright red seed cup initially green, but turn jet black later.
4. **Propagation:** By seeds and wood cuttings.
5. **Importance:** Drought tolerant. The bark decoction is used as a tonic. Used in treatment of asthma, diarrhoea and menstrual disorder. The paste of stem is applied on boils.
6. **Location:** Botanical Garden.

DHAMANI - DHAMAN



Grewia tilifolia

Summary

Scientific Classification

Kingdom: Plantae

Division: Angiospermae

Class: Dicotyledonae

Order: Malvales

Family: Malvaceae

Genus: Grewia

Species: G.tilifolia

Scientific Name: Grewia tilifolia Vahl.

Common names

English: Dhaman.

Hindi: Dhamani.

Kannada: Nimbegida, tadasaali hannu.

Marathi: Dhaman.

Description

1. **Habit and Habitat:** Deciduous tree growing 12-24 mts tall. Terrestrial habitat.
2. **Distribution:** Native to Africa and also distributed in India, Assam, Bengal, Bihar.
3. **Morphology:**
 - Leaf:** Simple, alternate, stipulate, petiolate, margin double serrate, Apex acute.
 - Inflorescence:** Axillary or terminal type.
 - Flowers:** Bisexual flowers, yellow in colour.
 - Androecium:** many free stamens.
 - Gynoecium:** Ovary superior, globose, ovules many, two lobed, hairy.
 - Fruit:** Drupe, globose, about pea sized.
 - Seeds:** are of medicinal value.
4. **Propagation:** by seeds.
5. **Importance:** Used for fibre and wood. Fruits are edible. Seeds are of medicinal value. Used in treating wounds and cough.

6. **Location:** Botanical Garden.

SEMAL - SILK COTTON TREE



Bombax ceiba

Summary

Scientific Classification

Kingdom: Plantae

Division: Magnoliophyta

Class: Magnolipsida

Order: Malvales

Family: Malvaceae

Genus: Bombax

Species: B.ceiba

*Scientific Name: Bombax ceiba*L.

Common names

English : Silk Cotton, Red silk cotton tree.

Hindi: Shimbāl, Kaantisenbāl.

Kannada: Booraga, Kempuburuga.

Marathi: Saanvar, Saanvari.

Discription

1. **Habit and Habitat:** 10-30m tall, perennial, large-sized, deciduous tree. Hot, dry river valleys, savannah; at elevations below 1,400 meters' in southern China. Humid lowland deciduous forests Often found near stream banks.
2. **Distribution:** E. Asia - southern China, Indian subcontinent, Myanmar, Thailand, Laos, Vietnam, Malaysia, Indonesia, Philippines to Papua New Guinea and Australia.

3. Morphology:

Leaf: : Compound, digitate, leaflets 2-7, dorsiventral, entire, unicostate reticulate venation, oval or lanceolate, acute at the base, with a sharp point at the apex, petiolate, stipulate (free lateral and caducous), alternate, pentastichous.

Inflorescence: Solitary or cluster of several extra-axillary flowers. At the time of flowering, the tree becomes almost leafless.

Flowers: Complete, pedicellate, bract caducous, actinomorphic, bisexual, pentamerous, hypogynous, cyclic, epicalyx absent. Calyx made up of sepals 5, gamosepalous, cup-shaped, persistent, fleshy, leathery, greenish-purple, valvate. Corolla made up of petals 5, polypetalous, scarlet, twisted. Petals fleshy, sessile, entire, oblong, 2-3" long, tomentose and covered with stellate hairs on both sides.

Androecium: Stamens numerous (about 70), polyadelphous, forming staminal groups or bundles, one staminal bundle around the carpel while 5 bundles towards the periphery alternating with petals.

Gynoecium: composed of 5 carpals, syncarpous, superior, pentalocular,

2-4 ovules in each locule, axile placentation, style simple, pentangular, glabrous, stigmas 5, scarlet.

Fruit: An oblong, 4-5" long, loculicidal capsule.

Flowering and Fruiting time: February-March.

4. **Propagation:** Through seeds.

5. **Importance:**

a.They are highly valued as a curry vegetable. The young roots are diuretic and tonic. The gum is astringent, demulcent and tonic. The flowers are astringent and refrigerant. Roots yield a medicine used in impotency.

b.Fibers are used in filling cushions.

c.Wood is used in preparing match boxes and match sticks.

6. **Location:** Botanical garden, New building area.

TAAD - TODDY PALM



Borassus flabellifer

Summary

Scientific Classification

Kingdom: Plantae

Division: Magnoliophyta

Class: Liliopsida

Order: Arecales

Family: Arecaceae

Genus: Borassus

Species: B.flabellifer

Scientific Name: Borassus flabellifer L.

Common Names:

English: Asian Palmyra palm, Toddy palm, Sugar palm, or Cambodian palm.

Hindi: Taad, tal, Trinaraa.

Kannada: Olegari, Taalegari, Taatiningu.

Marathi: Taad.

Description:

1. **Habit and Habitat:** The palmyra palm is a very tall, dioecious, single-stemmed evergreen palm tree that can eventually reach a height of 30metres. The unbranched stem can be up to 1 metre wide at the base, narrowing to 40 - 50cm at around 4metres and thereafter cylindrical; it is topped by a crown of up to 60 large, stiffly projecting fan-shapedleaves.
2. **Distribution:** found in Bangladesh, Cambodia, China South-Central, India, Jawa, Laos, Lesser Sunda Is., Malaya, Myanmar, Socotra, Sri Lanka, Sulawesi, Thailand, and Vietnam. South and Southeast Asia. Determining the ‘natural’ distribution of *Borassus flabellifer* is essentially impossible as it is a widely planted crop plant. It is largely restricted to areas with seasonal rainfall and ranges from western India through Indochina to the Lesser Sunda Islands of Indonesia.
3. **Morphology:**
Leaves: Leaves, 40 - 70 per crown, leaves petiole and sheath 150 – 180 cm long; petiole wide at midpoint, robust, bright yellow, margins black

with short black erose teeth; lamina radius to 150 cm maximum, dense adaxial and abaxial indumentum on the ribs of some juvenile leaves, leaflets ~62, 4.2 – 9.5 cm wide, apices acute and entire or splitting longitudinally with age, shortest leaflet 13 – 39 cm long, commissural veins 11 – 18 per cm, leaf anatomy isolateral.

Inflorescence and Flowers: Catkin-like, dioecious, Staminate inflorescences branched to two orders, upper subtending branches terminating in 1 – 3 (– 4) rachillae; rachillae green to brown and catkin-like, 23 – 50 cm long and 1.8 – 2.5 cm in diameter, sometimes with a mamilliform apex, rachilla bracts forming pits containing a cincinnus of 4 – 7 flowers. Pistillate inflorescences usually spicate (branched inflorescence pictured in the lectotype), flower-bearing portion 12 – 85 cm long with 5 – 20 flowers arranged spirally. Staminate flowers exerted from pits individually, 0.24 – 0.6 cm long, bracteoles $0.4 - 0.7 \times 0.1 - 0.3$ cm, calyx 0.3×0.15 cm and shallowly divided into three sepals, petal lobes 0.1×0.1 cm; stamens 6 with very short filaments, 0.2×0.03 cm, anthers, 0.05×0.03 cm; pistillode minute. Pollen monosulcate, elliptical, 48 – 95 μm long, aperture 40 – 95 μm long, polar axis 30 – 89 μm long; tectum perforate, sparsely covered with supratectal gemmae. Pistillate flowers 3×3 cm; bracteoles large, 2 cm in diam., sepals 1.5×2 cm, petals 1×1.5 cm.

Fruit: Fruits massive, yellowish black, ovoid and rounded or flattened at the apex; produced inside persistent perianth segments; epicarp coriaceous, mesocarp pulp yellow, pyrenes somewhat bilobed; most pyrenes with one or two external, longitudinal furrows; internal flanges absent.

Seeds: seeds 1-3.

Flowering and fruiting seasons: starts from 12-20 years after germination usually in dry season.

4. **Propagation:** Throughseeds.

5. Importance:

The fruit, Apical bud, Inflorescence is edible. Sap is used to make jaggery and beverages. Innumerable traditional medicinal uses are known for all parts of the toddy palm. The young plant is said to relieve biliousness, dysentery and gonorrhea. Young roots are anthelmintic and diuretic. A decoction is given in certain respiratory diseases. Dried roots can also be smoked to heal nasal complaints. The ash of the flower is taken to relieve heartburn and enlarged spleen and liver. The bark decoction, with salt, is used as a mouth wash. A charcoal made of the bark serves as a dentifrice. Sap from the flower stalk is prized as a tonic, diuretic, stimulant, laxative and anti-phlegmatic and amoebicide. Sugar made from this sap is said to counteract poisoning and it is prescribed in the treatment of liver disorders. When candied, it is a remedy for coughs and various pulmonary complaints. Fresh toddy, heated to promote fermentation, is bandaged onto all kinds of ulcers. The apical bud, leaf petioles, and dried male flower spikes all have diuretic activity. The pulp of the mature fruit relieves dermatitis. It is also useful as an anti-inflammatory and for dropsy and gastric conditions. Also has potential immuno-suppressive action. Constituents are: gum, fat and albuminoids. The leaves have a wide range of uses, such as thatching for house roofs and walls, weaving into baskets, mats and many other items. The top young leaves are made into hats, boxes to store rice, baskets and fans. A fiber obtained from the leaves is used to make string, rope, fencing etc. The fiber obtained from the base of the petioles, or the sheathing leafstalks, is stiff, harsh and wiry. It is used to make brushes etc. Petioles are often can be split into fiber, to be used for weaving and matting. The dried leaflets were at one time used as a paper to record Indian holy texts. The lowest 10 meters of the trunk has a hard and strong wood that is heavy, very durable and very resistant to termites, insect borers and decay fungi. It is good for constructing buildings, bridges etc. The somewhat softer middle part of the stem can be split into boards. The

whole trunk can be made into a small boat capable of carrying at least three people. The wood and leaves are used as fuel. The wood can be made into charcoal.

6. **Location:** Botanical garden, Main entrance garden.

GUMBAR - WHITE TEAK TREE



Gmelina arborea

Summary

Scientific Classification

Kingdom: Plantae

Division: Angiosperm

Class: Dicotyledonae

Order: Lamiales

Family: Lamiaceae

Genus: Gmelina

Species: G.arborea

Scientific Name: Gmelina arborea Roxb. ex Sm.

Common Names:

English: White teak, Cashmeri teak, Coomb teak, Candahar tree, Cashmere Tree, Kambari, Gamari, White Kashmir Teak.

Hindi: Bhadraparni, Gumbar or Gamhar.

Kannada: Kumbudi, Kaashmiri Mara, Shivanimara, Shivani, Shivanemara.

Marathi: Shivan, Shewan Thorshivani.

Description:

1. **Habit & Habitat:** *Gmelina arborea* is an unarmed, moderately sized to large deciduous tree with a straight trunk. It is wide spreading with numerous branches forming a large shady crown, attains a height of 30 m or more and a diameter of up to 4.5 m. Occurs in a variety of forest habitats, including tropical semi-evergreen, sub-montane, very moist teak forests, deciduous, sal and dry teak forests. It also occurs in *Syzygium* parkland and low alluvial savannah woodland.
2. **Distribution:** *Gmelina arborea* is native from Pakistan south to Sri Lanka and east to Myanmar, Thailand, Vietnam and southern China. It is extensively planted as a fast-growing tree in tropical areas of Africa, Asia and America.
3. **Morphology:**
 - Leaf:** Large, broadly ovate, acuminate, cordate at base, hairy below.
 - Inflorescence:** Inflorescence consisting of cymes arranged in a terminal or axillary panicle up to 40 cm long.
 - Flower:** Flowers bisexual, zygomorphic, 5-merous; calyx broadly campanulate, c. 5 mm long, densely hairy, with small triangular teeth; yellow-brown to orange, tube funnel-shaped, widened near apex, 2-lipped, upper lip 2-lobed, lower lip 3-lobed.
 - Androecium:** stamens 4, 2 long and 2 short, inserted at the base of the corolla tube.
 - Gynoecium:** ovary superior, ovoid, 4-celled, style slender, stigma 2-lobed with unequal lobes.
 - Fruit:** Fruit a globose to obovoid, fleshy drupe 2–3.5 cm long, glossy and yellow when ripe, seated on the accrescent calyx, 1–4 seeded.
 - Seed:** oblong to lens-shaped, without endosperm.

Fruiting season: April—June.

Flowering season: February—March.

4. **Propagation:** Through seed.

5. **Importance:**

Root of *Gmelina arborea* is an ingredient of the “Dasamula”. It promotes digestive power and improves memory. The timber is very hard and used for furniture work. An infusion of the root increases the flow of milk in woman. Roots are given with other drugs in gout, leprosy and eczema. Juice of the leaves is given in diabetes.

6. **Location:** Botanical Garden.

BENGALI BABUL - AUSTRALIAN WATTLE TREE



Acacia auriculiformis

Summary

Scientific Classification

Kingdom: Plantae

Division: Magnoliophyta

Class: Magnolipsida

Order: Fabales

Family: Fabaceae

Genus: Acacia

Species: C.auriculiformis

Scientific Name: Acacia auriculiformis Benth.

Common names

English : Australian wattle, Japanese acacia, coast wattle, Darwin black wattle, ear-leaf acacia, ear-pod black-wattle, ear-pod wattle, wattle, tan wattle, northern black wattle, Papua wattle.

Hindi: Bengali babul.

Marathi: Akashia.

Discription

1. **Habit and Habitat:** It is a thornless, medium-sized and evergreen tree growing up to 15 m high. A riparian species, ringing perennial rivers and semi-perennial creeks, and tending to form discontinuous populations along drainage systems Savannas, woodlands, swamp edges, coastal savannas, grasslands, monsoon forests and regrowth.
2. **Distribution:** tree are found in Australia, Papua New Guinea and Indonesia. It has been extensively introduced across the tropics.
3. **Morphology:**

Leaf: : The leaf is actually an expanded petiole resembling and having the function of a leaf, a phyllode. phyllodes grow alternately on the stem (spirally arranged), bright green-coloured. It is coriaceous, leathery and glabrous on both sides. The shape is elliptic and falcate, the apex is obtuse or acute, the base is attenuate and the margins are entire. The phyllode has parallel and arching veins.

Inflorescence: flowers are grouped in axillary and terminal spikes.

Flowers: Yellow, fragrant, complete, actinomorphic, hermaphrodite. The calyx-tube is cup-shaped with 5 short and triangular lobes. The calyx is

light green yellowish and glabrous. The corolla is composed of 5 yellow-coloured and glabrous petals. The petals are ovate-lanceolate and recurved, about 1 mm long and 0.6-0.7 mm wide.

ANDROECIUM: The androecium is composed of numerous and bright yellow stamens. The filaments are 1.5-2 mm with tiny and globular anthers.

GYNOECIUM: The style is yellow-coloured, 2.5-3 mm long and the stigma is simple. The ovary is globose and 1 mm across.

Fruit: The fruit is a coiled and spirally twisted pod. The pod is 6-8 cm long and 1 cm wide, flattened and it usually contains 5-7 seeds. The pod is brownish-coloured and woody when ripe.

Seeds: The seeds are ovate, 5 mm long and 4 mm wide. The seeds are dark brown-coloured and encircled by a long showy yellowish-orange-coloured and fleshy funicle.

Flowering and Fruiting time: December-March.

4. **Propagation:** by seed.

5. **Importance:**

- a. The wood is extensively used for paper pulp and large-scale plantations have already been established for the production of pulp.
- b. The bark is used as tanning material and a natural dye is also extracted from the bark. The wood is fine-grained, often attractively figured and finishes well. It is excellent for turnery articles, toys, carom coins, chessmen and handicrafts. It is also used for furniture, joinery, tool handles and for construction.
- c. It is a major source of firewood. It also provides very good charcoal.
- d. Cultivated in gardens or planted on road sides.

6. **Location:** In front of New Building.

KAMALA - SCARLET CROTON TREE



Mallotus philippensis

Summary

Scientific Classification

Kingdom: Plantae

Division: Angiospermae

Class: Dicotyledonae

Order: Malpighiales

Family: Euphorbiaceae

Genus: Mallotus

Species: M.philippensis

Scientific Name: Mallotus philippensis (Lam.) Muell.Arg.

Common Names:

English: Kaamala Tree, kamala Tree, dyer's rottlera, Monkey face tree, Orange kamala, red kamala, scarlet croton.

Hindi: Kamala, raini, rohan, rohini, sinduri.

Kannada: Kunkuma-damara.

Marathi: Kesari, shendri.

Description:

1. **Habit and Habitat:** an evergreen, deciduous trees. Terrestrial habitat, an irregular trunk and grey bark with many rusty-pubescent branches.

2. **Distribution:** Occurs in South Asia, Southeast Asia, as well as Afghanistan and Australia. The southern most limit of natural distribution is Mount Keira, south of Sydney.

3. **Morphology:**

Leaf: Ovate, ovate-elliptic, ovate-lanceolate or elliptic-lanceolate, acute or acuminate at apex, rarely notched, rounded or truncate at base, entire or serrate along the margins, glabrescent above, pubescent with minute red glands beneath, pale green, subcoriaceous, petiolate, petioles terete, rusty pubescent, curved at the top.

Inflorescence: Racemes.

Flower: Small, greenish-yellow, male sessile or pedicelled, in erect, axillary or terminal simple spikes rarely solitary.

Androceium: Each flower with numerous stamens, small.

Gynoceium: Stellate hairy, 3 celled ovary with 3 papillose stigmas.

Fruit: Capsules subglobose, 3-lobed, glandular-hairy, deep-red.

Flowering and Fruiting Time: October-November.

Seeds: black, smooth, subglobose.

4. **Propagation:** By seeds.

5. **Importance:**

The red powder Kamala (kanku) is used as an vermifuge for round and ring worms. Soluble in alcohol, produces a red dye suited to colouring of silk and wool.

6. **Location:** Throughout college.

BEDINA - DHOBI TREE



Mussaenda glabra

Summary

Scientific Classification

Kingdom: Plantae

Division: Angiospermae

Class: Dicotyledonae

Order: Malvales

Family: Rubiaceae

Genus: Mussaenda

Species: M. glabra

Scientific Name: Mussaenda glabra Vahl.

Common Names:

English: Dhobi Tree, Flag bush, White flag, White rag plant.

Hindi: Bedina.

Kannada: Bellotti.

Marathi: Bhutakesha.

Description:

1. **Habit and Habitat:** Common along the edge of primary and secondary forests, open forests; 300-600 m. Terrestrial habitat.

2. **Distribution:** Distributed all over the world India: Assam, Meghalaya; China, Indo-china, Malaysia.

3. **Morphology:**

Leaf: Leaves simple, opposite decussate; stipules triangular, acuminate, 2-fid, rusty pubescent; petioles.

Inflorescence: Terminal cymes.

Flower: Flowers orange-yellow, across in terminal cymes; peduncles slender, pubescent; bracts subulate; pedicelate, pubescent; bracteoles linear-lanceolate; calyx-tube oblong; lobes linear-lanceolate; petaloid sepals elliptic or oblong, white; corolla-tube, pubescent, shining scaly hairs within; lobes orbicular; styles filiform.

Fruit: Berries 1.2 cm in diam., globose.

Seed: Tiny seeds.

4. **Propagation:** It can be propagated by seed and stem cutting.

5. **Importance:**

Used as Fruit & Vegetable; also as Herb & Spice. Medicinal (Its leaves can be used to make tea which may be given for cough. The leaves are chewed with betel, consumed to treat bowel complaints, as a poultice for headache, or eaten in salad. A decoction of the roots is given after childbirth. The abundance of this flower throughout the year can be used for evaluating its medicinal value. It is used for its anti oxidant property.

6. **Location:** Botanical Garden.

RAMATANA CHAMPA - GOLDEN CHAMPA TREE



Ochna obtusata

Summary

Scientific Classification

Kingdom: Plantae

Division: Angiospermae

Class: Dicotyledonae

Order: Malphigiales

Family: Ochnaceae

Genus: Ochna

Species: O.obtusata

Scientific Name: Ochna obtusata DC.

Common Names:

English: Golden champa.

Hindi: Ramdhan champak.

Kannada: Ramatana champaka.

Description:

1. **Habit and Habitat:** A woody small tree with terrestrial habitat.
2. **Distribution:** Native to East India. Also distributed in South Africa, Western Ghats, and Maharashtra.
3. **Morphology:**
 - Leaf:** Simple, alternate, stipulate with long petioles.
 - Inflorescence:** Axillary or lateral racemes.
 - Flower:** yellow in colour, pedicels upto 2.5cm long.
 - Androceium:** Stamens many, anthers long.
 - Fruit:** A drupe.
 - Seeds:** Bright red seed cup initially green, but turn jet black later.
4. **Propagation:** By seeds and wood cuttings.
5. **Importance:** Drought tolerant. The bark decoction is used as a tonic. Used in treatment of asthma, diarrhoea and menstrual disorder. The paste of stem is applied on boils.
6. **Location:** Botanical Garden.

Kassod - Cassia Tree



Senna siamea

Summary

Scientific Classification

Kingdom: Plantae

Division: Angiosperm

Class: Dicotyledonae

Order: Fabales

Family: Fabaceae

Genus: Senna

Species: S.siamaea

Scientific Name: Senna siamea (Lam.) Irwin et Barneby.

Common Names:

English: Kassod tree, Cassia tree.

Hindi: Seemia.

Marathi: Kassod.

Description:

1. **Habit and Habitat:** a small tree of quick growth, 2-20m high with spreading branches.
2. **Distribution:** The plant is common as a street tree in Brisbane.
3. **Morphology:**
 - Leaf:** Paripinnate, leaflets 6-14 pairs, oblong, emarginated, mucronate.
 - Inflorescence:** Panicles of corymbose.
 - Flower:** yellow in colour. Calyx divided, petals 5, subequal, Stamens 10, 3 sterile.
 - Androceium:** stamens 10, anthers are erected and basifixed.
 - Gynoceium:** Ovary superior, linear and grooved.
 - Fruit:** Pod flat, brown. **Flowering and Fruiting Time:** August-May.
 - Seeds:** seeds are edible.

4. **Propagation:** By seeds.
5. **Importance:**
Planted as a roadside tree. Wood from this is highly valued in Chinese furniture making. Has medicinal value.
6. **Location:** Botanical Garden, Avenue, Main Entrance Garden, Sports ground, Hostel, Parking area and New Building.

Phanas - Jackfruit Tree



Artocarpus heterophyllus

Summary

Scientific Classification

Kingdom: Plantae

Division: Magnoliophyta

Class: Dicotyledonae

Order: Urticales

Family: Moraceae

Genus: Artocarpus

Species: A.heterophyllus

*Scientific Name: Artocarpus heterophyllus*auct. Non L.f.

Common names

English : Jackfruit, Jackfruit tree.

Hindi: Katahal, Kathal.

Kannada: Halasina hannu.

Marathi: Phanas.

Discription

1. Habit and Habitat: Jackfruit is a tree which is unique in the fact that it produced huge fruits directly from its stem. A large medium-sized evergreen tree with a short trunk and a dense rounded crown of leaves.
2. Distribution: Jackfruit is most probably native of the rain-forests of the Western Ghats. The jackfruit is most probably indigenous to (and in the past grew wild in) the rain forests of the Western Ghats, India. Since time immemorial it has been cultivated; it was introduced and became naturalized in many parts of the tropics, particularly in the South-East Asian region.
3. Morphology:
 - Stem: Thick dark brown and rough.
 - Leaf: Simple, alternate, stipulate, petiolate, thick, dark green, leathery, elliptic to obovate, acute tip.
 - Inflorescence: Inflorescences solitary, borne axillary on special lateral, short leafy shoots arising from older branches and main trunk.
 - Flower: Male and female flowers are borne separately but on the same plant (tree) from the tip of the branches or from the trunk.
 - Androecium: Male flowers have tubular calyx, apically 2-lobed, pubescent; filament straight in bud; anther ellipsoid.
 - Gynoecium: Female flowers have tubular, hairy calyx, apically lobed with 1-celled ovary.
 - Fruit: It is a multiple aggregate type. It has a green to yellow-green exterior rind. The hard outer covering is derived from the enlarged female flowers. The whitish fibrous pulp within contains many seeds (as many as 500 per fruit). Pale yellow when young, yellowish brown when mature, ellipsoid, globose, or irregularly shaped, with stiff hexagonal tubercles and thick hairs. Inside this compound fruit, there are many true fruits - each consists of a large fleshy, yellow, aril-like perianth (pulp) having a seedwing.
 - Seeds: Smooth, ovoid, reniform.
 - Flowering and Fruiting time: from March to June, April to September, or June to August, depending on the climatic region, with some off-season crops from September to December, or a few fruits at other times of the year.
4. Propagation: can easily grow under tropical conditions in almost all types of soil. Propagation by vegetative methods.
5. Importance:
 - a. The ripe fruit may be eaten raw.
 - b. Unripe fruits are also used as vegetable and for making pickles.
 - c. Timber is used for making furniture and musical instruments.
 - d. Heartwood yields a yellow dye.
 - e. The bark is used for tanning and the leaves are eaten by cattle.
 - f. The fruits are also relished by the elephants.
6. Location: Front yard of Chemistry staffroom, New building area, Office area.

Chandan - Sandal Tree



Santalum album

Summary

Scientific Classification

Kingdom: Plantae

Division: Magnoliophyta

Class: Magnolipsida

Order: Santalales

Family: Santalaceae

Genus: Santalum

Species: S.album

Scientific Name: Santalum albumL.

Common names

English : Sandalwood, Indian sandalwood, Fragrant sandalwood, White Sandalwood.

Hindi: Sandal, Chandan.

Kannada: Agarugandha, bavanna, bhadrasri, Gandhadha Mara, Chanadana.

Marathi: Chandan, gandhachakod.

Discription

1. Habit and Habitat: A small evergreen glabrous tree with slender drooping branches with sap-wood white and odourless, the heart-wood yellowish brown, strongly scented. Sandalwood is an evergreen tree, growing up to 4-9 m tall. The trees have a long life, and may live up to one hundred years of age. The tree is variable in habit, usually upright to sprawling, and may intertwine with other species. The plant parasitises the roots of other tree species, but without major detriment to its hosts. The reddish or brown bark can be almost black and is smooth in young trees, becoming cracked with a red reveal. The heartwood is pale green to white as the common name indicates.
2. Distribution: It is native to India, Indonesia, native to semi-arid areas of the Indian subcontinent. It is now planted in India, China, Sri Lanka, Indonesia, Malaysia, the Philippines and Northern Australia.

3. Morphology:

Leaf: : The oval leaves are thin, oppositely arranged. Smooth surface is shiny and bright green, with a glaucous pale underside. Elliptic-lanceolate, subacute glabrous, entire thin, base acute, petiolate, petioles slender. Leaves thin, usually opposite, ovate or ovate elliptical, 3-8 x 3-5 cm, glabrous and shining green above, glaucous and slightly paler beneath; tip rounded or pointed; stalk grooved, 5-15 cm long; venation noticeably reticulate.

Inflorescence: Terminal and axillary paniculate cymes.

Flowers: Flowers bisexual. Brownish-purple, inodorous, perianth campanulate, limb of 4 valvet triangular segments. Flowers purplish-brown, small, straw coloured, reddish, green or violet, about 4-6 mm long, up to 6 in small terminal or axillary clusters, unscented in axillary or terminal, paniculate cymes. tepals 5, basally connate into a campanulate tube of 2 mm long, shortly connate to the basal part of the ovary; lobes 2.5 x 1.5 mm, ovate, thin, fleshy, glaucescent without, minutely ciliate.

Androecium: stamens 4, exserted, alternating with 4 rounded obtuse

scales, filaments 1 mm; anthers 0.7 mm, ovoid, 2-celled; Gynoecium: ovary superior later half inferior at the time of flowering, globose, 1 mm, 1-celled, ovules 2-3, pendulous from below the long, acuminate, central.

Fruit: Fruit a globose, fleshy drupe; red, purple to black when ripe, about 1 cm in diameter, with hard ribbed endocarp and crowned with a scar, almost stalkless, smooth, single seeded.

Seeds: albuminous, seed one.

Flowering and Fruiting time: February or March – August Flower panicles appear from March to April in India, and fruits ripen in the cold season; in Australia flowers appear in December to January and also June to August, and mature fruit is available from June to September.

4. Propagation: Through seeds.

5. Importance:

a. Wood ground up with water into a paste, is applied to local inflammations, to temples in fever, in skin diseases, to allay heat and pruritus.

b. It acts as diaphoretic.

In cases of morbid thirst wood-powder is taken in coconut water.

c. A bolus of ground sandal cheeks-hoemoptysis in mild form.

d. Essential oil from wood is used in perfumery and is a remedy as demulnent, diuretic and mild stimulant in gonorrhea and chronic cystitis.

e. Oil from the seeds is used in skin diseases.

f. Sandalwood oil was used traditionally to treat skin diseases, acne, dysentery, gonorrhea, and a number of other conditions.

g. In traditional Chinese medicine, sandalwood oil is considered an excellent sedating agent.

6. Location: Avenue, Botanical garden, New building area, hostel, Main entrance garden.



Janglisaru - Sharu Tree

Casuarina equisetifolia

Summary

Scientific Classification

Kingdom: Plantae

Division: Magnoliophyta

Class: Magnoliopsida

Order: Casuarinales

Family: Casuarinaceae

Genus: Casuarina

Species: C.equisetifolia

Scientific Name: Casuarina equisetifolia L.

Common Names:

English: Sharu, Beef Wood Tree, Sea Oak, Whistling Pine, Bull-Oak.

Hindi: Junglisaru.

Kannada: Kyasurina.

Marathi: Suru.

Description:

1. Habit and Habitat: A large and handsome tree with brown, rough, fibrous bark peeling in vertical stripes, wood yellowish pink to reddish brown, very hard evergreen tree.
2. Distribution: Found from Burma and Veitnam, throughout Malaysia east to French Polynesia, New Caledonia and Vanuatu and South into Australia.

3. Morphology:

Leaf: In whorls of 6 to 8, scales like.

Inflorescence: Flowers monoecious; male flowers in terminal spikes usually numerous at the ends of the same branches on which the females are borne lower down.

Flower: flowers are in whorls. Each male flower in the axil of a bract which with other bracts at the node form a sheath protecting the young flowers. There are two bracteoles and two small median hood shaped perianth leaves of which rarely only the posterior is present. Female flowers are crowded at the ends of short lateral branches. Each stands singly in the axil of the bract with the pair of bracteoles, perianth 0.

Androceium: Stamen 1, anther 2 celled, large.

Gynoceium: Ovary 1 celled composed of two carpels, ovules 2, parietal, ascending, style with 2 filiform stigmas.

Fruit: Winged nut, the whole ripened female, catkin resembles a small cone which is formed by the bracteoles becoming woody and form 5 valves enclosing the compressed nut like winged fruits.

Seeds: Winged seeds.

Flowering and fruiting time: August - November.

4. Propagation: Direct sowing of seeds.

5. Importance:

Wood is used for house pots, rafters, electric poles, mine props and masts of country craft. The bark is astringent and is useful in diarrhoea and dysentery. A lotion of it reported to be efficacious in beriberi. A decoction of the leaves is used in colic and powdered seeds are applied as plaster in headache.

6. Location: Campus Avenue.



Dypsis lutescens

Summary

Scientific Classification

Kingdom: Plantae

Division: Magnoliophyta

Class: Monocotyledonae

Order: Arecales

Family: Arecaceae (Palmae)

Genus: Dypsis

Species: D.lutescens

Scientific Name: Dypsis lutescens(H.Wendl.) Beentje & J.Dransf.

Common names

English: Madagascar Palm, Areca palm, Butterfly palm, Cane palm, Golden

cane palm, Yellow palm, Golden feather palm, Yellow butterfly palm, Golden-yellow palm.

Discription

1. **Habit and Habitat:** A small palm, often possesses few stems from the base.
2. **Distribution:** Native to Madagascar and South India and naturalized in the Andaman Islands, Réunion, El Salvador, Cuba, Puerto Rico, the Canary Islands.
3. **Morphology:**

stem: Bamboo-like, slender with annulated rings.

Leaf: Pinnate, 40-60 pairs of leaflets. The crown shaft is yellowish with a white waxy covering. Upper and lower leaflet surfaces are glossy green to yellow-green, without spines; the prominent midrib is yellowish.

Inflorescence: Axillary panicles.

Flower: Small, whitish or flowers are yellow, pedicellate, unisexual, with 3 sepals and 3 petals, borne in groups of 3 (1 female and 2 male), male and female flowers on the same inflorescence. Flower stalk coming from below the leaves.

Androecium: Stamens are 6 (3 + 3) equal stamens some with connective protrusions. Staminodes are absent Pistillode are present, usually conspicuous, columnar.

Gynoecium: syncarpous, normally pseudomonomerous and possess septal nectaries that effectively delimit the carpel margins and indicate insect pollination. There is a central solid transmitting tissue that extends from the placenta to three stylar canals. The stylar canals of the two sterile carpels are apparently functional, in addition to that of the fertile carpel.

Fruit: Purple or orange-yellow, about 2 cm long. Yellow to purple, ellipsoid drupe (light olive green to yellow in early stages), about 2-2.5 cm in diameter the flesh coat over the seed is not edible.

Seeds: About 2.5 in diameter, sandy brownish in colour with a vein-like texture.

Flowering and Fruiting time : Almost throughout the year.

4. **Propagation:** by seeds.

5. **Importance:**

a.The Areca Palm or Butterfly Palm is a relatively easy care indoor houseplant that has much going for it. Its attractive nature has been awarded the Royal Horticultural Society's Award of Garden Merit, which for a plant grown more commonly indoors than out, is a pretty rare feat.This ornamental palm is generally cultivated in gardens.

b.According to the NASA Clean Air Study and Dr. B. C. Wolverton, the areca palm filters xylene and toluene from the air.making it an effective humidifier.

c.This is one of the most useful Palms of the tropics the world around. Native to Madagascar, Golden Cane Palm is tropical-looking, serves as a super, bamboo-like screening plant and is relatively pest-free.

6. **Location:** throughout college campus.Supari - Betel Palm



Areca catechu

Summary

Scientific Classification

Kingdom: Plantae

Division: Magnoliophyta

Class: Liliopsida

Order: Arecales

Family: Arecaceae

Genus: Areca

Species: A.catechu

Scientific Name: Areca catechu L.

Common name:

English: Betel palm, Betel nut palm, Areca nut.

Hindi: Chamarpushpa, Guvak, Guwa, Khapor, Pug, Pugi.

Kannada: Adike, Bettadh adike, Adake.

Marathi: Pophali, Pugaphal, Pugiphala, Supari.

Description:

1. **Habit and Habitat:** Tall tree, tropical ever wet climates with evenly distributed rainfall, cultivated.
2. **Distribution:** Grows in much of the tropical specific, Asia, and parts of East Africa. Believed to have originated in Philippines, but is white spread in cultivation and is considered naturalized in Southern.
3. **Morphology:**

Leaf: long, pinnate with numerous crowded leaflets.

Inflorescence: Crowded, much branched panicles.

Flower: Of both sexes possessing 6 tepals, stockless, creamy white, fragrant. Male flowers are minute, deciduous. Female flowers are larger.

Androceium: 6 stamens, arrow head-shaped anthers.

Gynoceium: Ovary, 3 celled bearing a triangular stigma with 3 points at the apex.

Fruit: Monolocular, one seeded berry, 3.8-5cm long, smooth orange or

scarlet when ripe, with fibrous outer layer.

Seeds: void, brown but flattered at one end.

4. **Propagation:** by seeds.

5. **Importance:**

Areca nut is popular for chewing. Nut itself can be addictive and has direct link to oral cancers. It is used against anaemia, fits, leucoderma, leprosy and obesity. An ointment for nasal ulcers. Used to treat tape worms. Flowers are used for healing of the sick in Borneo. Chewing on the seeds produces Euphoria, heightened alertness, sweating, salivation and an increased capacity to work. Husk fibres are used to make thick boats fluffy cushions and non woven fabric and also used widely for a variety of construction purposes.

6. **Location:** Anant Manohar Garden.

Piliya - Yellow bells



Tecoma stans

Summary

Scientific Classification

Kingdom: Plantae

Division: Angiospermae

Class: Dicotyledonae

Order: Scrophulariales

Family: Bignoniaceae

Genus: Tecoma

Species: T.stans

Scientific Name: Tecoma stans (L.) Juss. ex Kunth.

Common names

English: Yellow bells, Yellow trumpet, Yellow-Elder.

Hindi: Piliya.

Kannada: Koranekelar.

Marathi: Ghanti fuls.

Description

1. **Habit and Habitat:** A large shrub or small, much-branched, tree usually growing 1.5 to 5 m tall, but occasionally reaching up to 10 m in height. A weed of roadsides, waterways (i.e. riparian areas), open woodlands, grasslands, forest margins, waste areas and disturbed sites in tropical and sub-tropical environments.
2. **Distribution:** Widely naturalised in the coastal districts of northern and eastern Australia (i.e. in northern and eastern Queensland, eastern New South Wales and northern and north-western Western Australia).
3. **Morphology:**

Leaf: Compound, opposite, imparipinnate, leaflets 5-11, ovate-oblong to lanceolate, acuminate and serrate.

Inflorescence: Terminal panicles.

Flowers: Flowers Monoecious occur in clusters at the ends of the branches and are trumpet shaped with 5 rounded lobes, 6 cm long, pale to bright yellow, with faint orange stripes at the throat. Calyx cup-shaped, 5-fid. Corolla funnel-shaped or bell-shaped, lobes 5, wavy.

Androecium: Stamens 4, didynamous, staminode present, anthers hairy, divergent.

Gynoecium: Ovary seated on a wavy disk, style long, stigma 2-lipped.

Fruit: Capsule, long, linear, flat, seeds winged.

Seeds: many winged seeds, green when young, pale brown on ripening and remain on the tree in untidy clusters for many month.

Flowering and Fruiting time: September – December.

4. **Propagation:** by seeds.
5. **Importance:** It is used as a garden ornament. It is used in cabinet making, turnery, to make tools, and in the construction of buildings. The flowers are diuretic. A leaf infusion can be taken orally for treating diabetes and stomach pain.
6. **Location:** Avenue, Ananth Manohar Garden, Sports Ground, Parking area, Library - Gymkhana.

wodyetia palm - foxtail palm



Wodyetia bifurcata

Summary

Scientific Classification

Kingdom: Plantae

Division: Magnoliophyta

Class: Monocotyledonae

Order: Arecales

Family: Arecaceae

Genus: Wodyetia

Species: W.bifurcata

Scientific Name: Wodyetia bifurcata.

Common names

English : Wodyetia palm, Foxtail palm.

Discription

1. **Habit and Habitat:** Wodyetia bifurcata is a canopy tree that grows in open forests and scrublands on gravel hill tops amongst rocks and enormous granite boulders on sandy, granitic soils. Wodyetia bifurcata is a very attractive monoecious, thornless, palm with long plumose leaves (hence the name 'Foxtail') It has one of the most spectacular foliage displays of all palms. Foxtail palm is thornless and has a slender, closely ringed bottle shaped to columnar trunk that grows up to 30 ft tall. Trunk: Solitary, slender, 10-20 m tall, 20-25 cm in diameter, bottle shaped, slightly swollen on the median part, smooth, with a grey to almost white colour, closely ringed with dark trace of the junction of the fallen leaves.
2. **Distribution: IUCN's red list of threatened species** .Endemic to a small area on Cape Melville in the Cape York Peninsula, north Queensland.(Australia) It is a very popular ornamental palm cultivated worldwide in tropics and sub-tropics. Foxtail palm is native to Australia. Altitude range: between 50 and 400 metres above sea level.
3. **Morphology:**
Leaf: : The pale green arching fronds have leaflets that radiate out at all

angles from the leaf stem, thus appearing like a bottlebrush or the tail of a fox. The mature tree has a canopy of 8-10 leaves, each with the characteristic foxtail or bottlebrush appearance, and a crown of leaves 15-20 ft across.

Inflorescence: Inflorescence pendulous, to 1 m, densely branched to four orders toward the base and one or two orders at the tip, with separate, white to yellowish staminate and pistillate flowers.

Flowers: It bears white blossoms of both sexes at the base of its crown, and a single palm is capable of producing fertile seeds.

Androecium: Stamens 60-71, filaments and stylodes lacking scales. Male flowers with sepals 3, c. 5-6 mm long, cream-green; petals 3, c. 10 mm long, cream-green; stamens 58-72 per flower.

Gynoecium: ovary, style and stigma always well developed but the ovules are absent in the male flowers. Female flowers with sepals 3, 6-7 x 5-7 mm, green; petals 3, 9-11 x 6-8 mm, green; c. 3-6 staminodes present; stigma 5 mm long spreading.

Fruit: Fruits clustered, ripening from green to orange-red berries, about 5 cm long.

Seeds: seeds terete, seed shell covered with wavy, slightly depressed, longitudinally tending fibrous lines, some forking.

Flowering and Fruiting time: Mature fruit is present in October-December, open flowers are likely to be found in December-February. Seed germinates in 2-3 months, coinciding with the wet season, but sporadic germination continues for at least 14 months.

4. **Propagation:** By seed.
5. **Importance:** *Wodyetia bifurcata* (Foxtail Palm) A hardy, slender, tall and compact growing Australian native Palm perfect for lining driveways, fence lines and for creating a small but striking top canopy in tropical gardens. The foxtail palm is self-cleaning, with bright, feathery foliage.
6. **Location:** anath manohar garden.

queen sago - sago palm



Cycas circinalis

Summary

Scientific Classification

Kingdom: Plantae

Division: Tracheophyta

Class: Cycadopsida

Order: Cycadales

Family: Cycadaceae

Genus: Cycas

Species: C.circinalis

Scientific Name: Cycas circinalis L.

Common names

English :Sago Palm, queen sago.

Discription

1. **Habit and Habitat** :medium sized suckering cycad, growing 3 - 5 metres tall, exceptionally to 10 metres. is a stout palm-like plant with a trunk covered in thick and corky bark, it produces one or more, usually unbranched stems.

2. **Distribution:** :: The plant is classified as 'Endangered' in the IUCN Red List of Threatened Species(2011). *Cycas circinalis* is restricted to southwest India.

3. **Morphology:**

Leaf: bright green and semi glossy, rosette pattern about 280cm long ,flat in section. petiolate, petiole about 70cm long,partially or entirely spinescent. leaflets about 50-120(oppositely arranged), margins flat, midrib raised above and distinct below. emerging leaves have a glaucous sheen, young leaves are densely pubescent, older leaves are glabrous.

Cones: Male cone: Arise from the center of the top, light yellowish-brown to brown, egg-shaped to conical (24-)34-48, 12-15(-18) cm wide ,produces abundant pollen. Each microsporophyll is about 60 mm long and about 24 mm wide with a terminal spine 20-40 mm long.

Female cone: Like other *Cycas* species, the female plants do not bear cones; instead they carry ovules and seeds on large, feather-like megasporophylls which are about 35 cm long, having about 6-14 ovules, and an orange tomentum. The lamina/blade or sterile part of the megasporophylls about 40 mm long, about 35 mm wide rhomboid tapering into a long spine that is 15-35 mm long and 3-6 mm wide, strongly dentate or spinous toothed along margin. The 13-28 lateral spines are each about 4 mm long.

Seeds: small, sub-globular to elongated, about 40 mm long and 25 mm wide, they show a distinctive spongy, fibrous layer within the sarcotesta that allows them to float on water and are light-yellow, reddish-yellow or brown at maturity.

4. **Propagation:** by seeds.

5. **Importance:**

- a. All cycads have special upwardly growing multi-branched (coralloid) roots where nitrogen is fixed in symbiosis with *Nostoc* and *Anabena* algae.
- b. A gum resembling tragacanth (obtained from *Astragalus gummifer*)

exudes from wounds in the plant. Tragacanth has a wide range of uses including as a thickening agent in preparing dyes for calico printing, textile dyes and for dressing fabrics, it is also a thickener in making glues, water colours, ink (where it supplies a gloss), it is a binding agent in paper making, a culture medium in laboratories etc...

c. The bark and the seeds are ground to a paste with oil and used as a poultice on sores, cuts, wounds, ulcers and swellings.

6. **Location:** Botanical Garden, Entrance Garden.

Manjari - Fiddle Wood Tree



Citharexylum spinosum

Summary

Scientific Classification

Kingdom: Plantae

Division: Magnoliophyta

Class: Magnoliopsida

Order: Lamiales

Family: Verbinaceae

Genus: Citharexylum

Species: C.spinosum

Scientific Name: Citharexylum spinosum L.

Common Names:

English name: Fiddle woodspiny fiddle.

Hindi name: Manjari.

Kanda name: Beli parijatha.

Description:

Habit and habitat: It is a tree that reaches a height of up to 15 m (49 ft).

Commonly grown as garden / avenue tree.

Distribution: Native of West Indies; induced and naturalised in many other countries.

Morphology:

Leaf: leaves are up to 8 inches long, smooth and oval or oblong. The leaves also narrow at the base to a short stem, are coarse-toothed or entire, pointed at the tip, and are opposite or in groups of three.

Flower: flowers numerous, small, regular or somewhat zygomorphic; bractlets inconspicuous. Calyx cupular or tubular, 5-lobed or 5-toothed to truncate. Corolla white, 0.8-1 cm across, infundibular or hypocrateriform, usually 5-lobed, rarely 4- or 6-lobed, lobes slightly irregular; tube narrow, cylindric.

Inflorescence: Inflorescence axillary and terminal, racemiform or spicate, simple or branched, erect or drooping.

Fruit: Fruit a drupe, partly enclosed by the enlarged calyx; pyrenes 2-loculed and 2-seeded.

Flowering & Fruiting: April-September.

Propagation: Seed.

Importance:

Fiddle wood tree is used to make musical. The tree is harvested from the wild for local use as a food, medicine and source of a good quality wood. The wood is especially valued for making musical instruments, and the plant is often also

grown as an ornamental. A decoction of the young twigs is used in the treatment of children's thrush. The nectar-rich flowers are very attractive to bees.

Location: Botanical Garden.

Ashoka Tree



Saraca Asoca Roxb

Summary

Scientific Classification

Kingdom : Plantae

Division : Magnoliophyta

Class : Magnoliopsida

Order : Fabales

Family : Caesalpinaceae

Genus : Saraca

Species : S. asoca

Scientific Name : Saraca asoca Roxb.

Common Names

English : Ashoka Tree

Hindi: Sita Ashoka, Vand Ichitra

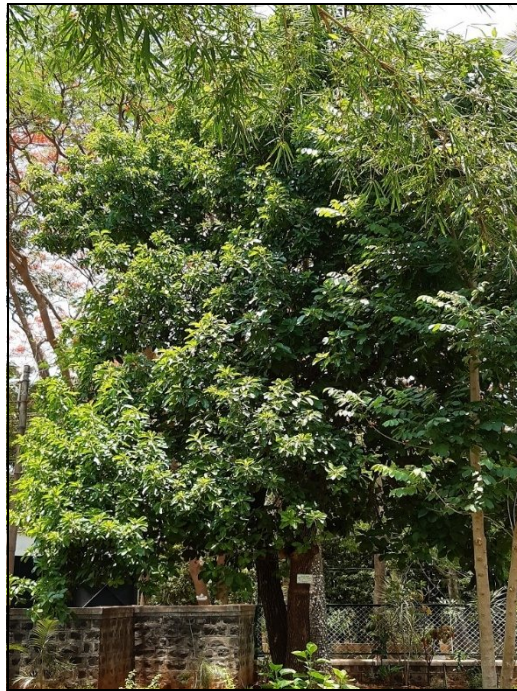
Kannada: Achenge, Ashanke, Kenkalimara, Ashokadamara

Marathi: Ashok, Jasundi, Sita Ashoka

Description

1. Habit and Habitat: Terrestrial, grows at an altitude of 750 m above the sea level⁶ and in fertile and semi-fertile soil. Height up to 9-10mts. Perennial, which can range from dark green to greyish green in colour.
2. Distribution: It is found all over Indian subcontinent. Native to the Western Ghats and Deccan plateau. It also found in central and Eastern Himalayas.
3. Morphology: Leaf: It is a Paripinnately Compound leaves, alternate, distichous and 7-30 cm long and its petiolule 0.1-0.6 cm long and opposite leaflets, 4-6 pairs, narrow elliptic-oblong or lanceolate, and its apex acute to acuminate, base acute to rounded or subcordate, glabrous, midrib raised above and tertiary nerves reticulate. Inflorescence: Dense Corymbs Flower: Bracteate, bracteolate, Calyx small petaloid, Corolla tube long, 5 petals. Androecium: 10 stamens, long, yellow at the base red at tapering ends, bilobed. Gynoecium: Ovary superior, many ovules, style long, stigma very small. Fruit: Pod, compressed, oblong, about 15cms long, dehiscence longitudinally. Seeds: obovate-orbiculate.
4. Propagation: Through seeds.
5. Importance:
Grown as ornamental tree in gardens. Highly Medicinal valued. It is anti-microbial, anti-ulcer, anti-oxidant, anti-cancerous, larvicidal activity, anti-inflammatory, anti-diabetic, anti-helminthic.
6. Location: Anant Manohar Garden opposite to RPD office.

Avocado - Butter Fruit Tree



Persea americana

Summary

Scientific Classification

Kingdom: Plantae

Division: Angiospermae

Class: Dicotyledonae

Order: Laurales

Family: Lauraceae

Genus: Persea

Species: P.americana

Scientific Name: Persea americana Mill.

Common Names:

English: Avocado, Butter fruit.

Description:

1. **Habit and Habitat:** Large, spreading, evergreen tree. Grows in humid lowland forests on limestone formations. Cultivated.

2. **Distribution:** Central America - Mexico. Extensively cultivated in tropical and subtropical regions.

3. **Morphology:**

Leaf: Alternately arranged, 12-25cm long.

Inflorescence: Panicles.

Flower: inconspicuous, greenish-yellow, bisexual, self pollinated.

Fruit: A large berry.

Seeds: single large seed.

4. **Propagation:** By seeds and grafting.

5. **Importance:**

The fruit contains reductase and transferase enzymes. The oil from the seeds contain steroids that are used for pharmaceuticals. The seed is ground and made into an ointment used to treat various skin afflictions. The reddish-brown dye obtained from the seed is used for marking clothes.

6. **Location:** Ananth Manohar Garden.

Neerukayi Mara - African Tulip Tree



Spathodea campanulata

Summary

Scientific Classification

Kingdom: Plantae

Division: Angiosperm

Class: Dicotyledonae

Order: Lamiales

Family: Bignoniaceae

Genus: Spathodea

Species: S.campanulata

Scientific Name: Spathodea campanulata P.Beav.

Common Names:

English: African tulip tree, fountain tree, Nandi flame, Nile flame, squirt tree, Tulip tree, Uganda flame, Scarlet Bell.

Hindi: Rugtoora.

Kannada: Neerukayi mara.

Description:

1. **Habit and Habitat:** A very handsome tree, One of the world's most spectacular flowering trees, African tulip tree is a large upright tree with glossy deep green pinnate leaves and glorious orange scarlet flowers. It may grow to 80 ft on an ideal site, but most specimens are much smaller. The tree has a stout, tapering, somewhat buttressed trunk covered in warty light gray bark. African Tulip Tree is a large tree that can reach 50 ft in height. a large tree with large compound leaves arranged in pairs along the branches.
2. **Distribution:** It is native to tropical dry forests of Africa. It has been nominated as among 100 of the "World's Worst" invaders. This tree is planted extensively as an ornamental tree throughout the tropics. It has become an invasive species in many tropical areas such as Hawaii, Queensland (Australia), Fiji, Papua New Guinea, and intermediate zones of Sri Lanka, India.
3. **Morphology:**
Leaf: Opposite, imparipinnate, leaflets 9-19, oval, pointed, with 2 or 8

fleshy glands. The 1-2 ft long opposite leaves, which emerge a bronzy color, are massed at the ends of the branches. They are composed of 5-19 deeply veined oval leaflets.

Inflorescence: Many flowered terminal racemes.

Flower: Orange-scarlet coloured, calyx boat-shaped, spathaceous, recurved, covers the flower in bud and then splits on one side and curves back, it has water secreting glands inside and contains water. Corolla large campanulate and swollen with ovate, wavy lobes.

Androecium: Stamens 4, exserted, yellow, anthers pendant.

Gynoecium: Disk large, cup shaped. Ovary oblong, ovules many.

Fruit: Capsule oblong-lanceolate, pointed at both ends.

Seeds: seeds winged.

Flowering and Fruiting Time: Decemer – March.

4. **Propagation:** Propagation is usually from seed, which can be variable. From herbaceous stem cuttings, from softwood cuttings, from semi-hardwood cuttings, from seed; sow indoors before last frost.
5. **Importance:**

The bark has laxative and antiseptic properties, and the seeds, flowers and roots are used as medicine. The bark is chewed and sprayed over swollen cheeks. The bark may also be boiled in water used for bathing newly born babies to heal body rashes. Commonly planted in the gardens or as an avenue tree on roads. It's a fine decorative tree.
6. **Location:** Anant Manohar Garden, Campus avenue, BCA surrounding sports ground surroundings.

Shirish - Lebbeck



Albizia lebbeck Scientific classification: Kingdom : Plantae Division : Tracheophyta

Class : Magnoliopsida Order : Fabales Family : Mimosaceae Genus : Albizia

Species : Albizia lebbeck Scientific Name : Albizia lebbeck (L.) Benth.

Common Names: English : lebbeck, lebbek tree, flea tree, frywood, koko and woman's tongue tree. Hindi: Saras () Kannada: (sirisa) Marathi: (shiras), (shirish)

Description:

1. Habit and Habitat: Terrestrial, grows at an altitude of 750 m above the sea level⁶ and in fertile and semi-fertile soil. Height up to 9-10mts. Perennial, which can range from dark green to greyish green in colour.
2. Distribution: it is native to Indomalaya, New Guinea and Northern Australia and widely cultivated and naturalised in other tropical and subtropical regions
3. Morphology: Leaf: Bipinnate, 7.5-15cms long, with 1-4 pairs of pinnae, each pinna with 6-18 leaflets. Inflorescence: Inflorescence is Heads Flower: Flowers mimosa-like, in showy, rounded clusters near stem tips, 5-6 cm across, cream or yellowish-white. White, fragrant, heads umbellate, from the upper leaf axils, solitary or fasciculate. Filaments

exserted, connate below into a short tube. Flowers bisexual, Androecium: each flower with numerous long stamens. Gynoecium: ovary subsessile, glabrous, style 2.5 cm, filiform; stigma minute. Fruit: Pods 10 - 25 cm long, 3 - 5 cm broad, thin, flat, straight, straw - coloured when old, glabrous and shining. Seeds : 4 - 12, spherical or slightly reniform, smooth, glabrous, yellowish brown. Flowering and Fruiting time : July - Oct ; Oct - Mar

4. Propagation: Through seeds.
5. Importance: The bark and seeds are used as astringent. The flowers are considered cooling and are externally applied in boils, eruptions, etc. The leaves, seeds etc. are used in ophthalmia. The timber is valued for a variety of purposes.
6. Location: in front of new building, entrance gate garden, opp to dining hall (beside library).

Basant rani - Pink trumpet tree



Tabebuia rosea

Summary

Scientific Classification

Kingdom: Plantae

Division: Angiospermae

Class: Dicotyledonae

Order: Lamiales

Family: Bignoniaceae

Genus: Tabebuia

Species: T.rosea

Scientific Name: Tabebuia rosea (Bertol.) DC.

Common names

English: Pink trumpet tree, Pink poui, Pink tecoma, Rosy trumpet tree.

Hindi: Basant rani.

Marathi: Halka sTabubia.

Description

1. **Habit and Habitat:** Pink trumpet is a tall, fast-growing tree reaching 25 to 30 m high. The crown is wide, stratified, and irregular, with a few thick, horizontal branches; the bole is straight, sometimes channeled at base.
2. **Distribution:** Native to continental America, and distributed in India.
3. **Morphology:**

Leaf: Decussate, long, petiolate, compound, digitate, 5 unequal leaflets, the central leaflet is the larger. Petioles pulvinate. They are oblong, obovate or loblong-ovate, with acute or acuminate apex, entire margin and obtuse base. Leaflet surface is lepidote adaxially and abaxially, sometimes it can be glabrous.

Inflorescence: Panicles.

Flowers: A staminode present. Anther dehiscence is longitudinal. The gynoecium is surrounded by a thick nectary.

Androecium: 4 didynamous stamens attached to the corolla, alternate

with the lobes.

Gynoecium: Consists of a single compound pistil of 2 carpels, a single style and a superior ovary with typically 2.

Fruit: Long, slender, linear-cylindrical, brown, bivalve, loculicidal capsule, attenuate at both ends.

Seeds: Seeds are whitish, thin, with broad, hyaline-membranous wings.

Flowering and Fruiting time: January to April.

4. **Propagation:** through Seeds and stem cuttings.
5. **Importance:** Generally planted as an ornamental in gardens. Preparations of the bark of the tree are consumed to eliminate intestinal parasites, malaria and uterine cancer. A decoction of the bark is recommended for anemia and constipation. A decoction of the flowers, leaves and roots has been used to reduce fevers and pain, cause sweating, to treat tonsil inflammation and various other disorders.
6. **Location:** Sports ground, In front of Chem Staffroom, New Building.

Kaju - Cashew



Anacardium occidentale Scientific classification : Kingdom : Plantae Clade: Angiosperm Clade : Eudicots Clade : Rosids Order : Sapindales Family: Anacardiaceae Genus : Anacardium Species : A.oxidantale

Common name : English :Cashew nuts, caju, cashew apple Hindi :Kaju Kannada :Godambi, Geru, Godambe Marati :Kaju

Discription:

1. Habit and Habitat : A small crooked tree, cultivated.
2. Distribution : Native of Brazil, South America, cultivated in Asia and Africa, distributed in Andaman and Nicobar island, Assam, Kerala, Odissa.
3. Morphology: Leaf :Simple, obovate, rounded at apex, base wedge-shaped, Coriaceous. Inflorescence: Panicles. Flower : In terminal panicles, bracts ovate. Calyx - 5 partite, imbricate, deciduous. Corolla – petals linear-lanceolate, deflexed. Androceium: Stamens about 9, one fertile and longer than others disk, filling the base of the calyx. Gynoceium : Ovary obovoid, tapering into awl-shaped style. Fruit : Nut, reniform, seated on a large, pyriform, fleshy thalamus of golden colour, formed of the enlarged disk and the top of the peduncle. Seed : a nut. Flowering and Fruiting time :January - March.
4. Importance :Fruits are edible, roasted nuts which are aphrodisiac, and cures loss of appetite. The shell of cashew seed yields derivatives that can be used in many applications including lubricants, waterproofing, paints, and arms production. The fruit pulp can be processed into a sweet, astringent fruit drink or distilled into liquor.
5. Propagation: By seeds.
6. Location: in front of chemistry staff room.

Imli - Tamarind



Tamarindus indica

Summary

Scientific Classification

Kingdom: Plantae

Division: Angiospermae

Class: Dicotyledonae

Order: Fabales

Family: Fabaceae

Genus: Tamarindus

Species: T.indica

Scientific Name: Tamarindus indica L.

Common names

English: Tamarind, Sampalok, Indian date.

Hindi: Imli.

Kannada: Hunse.

Marathi: Chinch.

Description

1. **Habit and Habitat:** A large evergreen tree. Low altitude woodland, savannah and bush, often associated with termite mounds.

2. **Distribution:** Probably originating in tropical Africa, it is now widespread through the tropics and subtropics.

3. **Morphology:**

Leaf: Paripinnate compound, leaflets 10-20 pairs, oblong, obtuse, stipules linear, caduceous.

Inflorescence: Terminal racemes.

Flowers: Pedicels articulated below the calyx, bracts concave, and bracteoles small. Calyx conelike, segments 4, unequal, oblong, obtuse. Petals 5, 3 fertile, the other 2 rudimentary, obovate-oblong, yellow with pink-red stripes.

Androecium: Stamens 10, 3 fertile, united above half way up, the rest rudimentary, as small scales or bristles.

Gynoecium: Ovary stalked, ovules 8, 12 or more, stigma capitate.

Fruit: Pod curved, indehiscent, with a tuft, scaly epicarp and an edible pulpy, acid mesocarp.

Seeds: 3-12, obovate-oblong, truncate.

Flowering and Fruiting time: May-July.

4. **Propagation:** By seeds, cuttings of greenwood, air layering, Grafting.

5. **Importance:** Cultivated for its edible fruits. The bark is used for loss of sensation in paralysis. The leaves are applied on inflammation.

6. **Location:** Botanical Garden and Office.

Plumeria Tree



Plumeria alba

Summary

Scientific Classification

Kingdom: Plantae

Division: Angiosperm

Class: Dicotyledonae

Order: Gentianales

Family: Apocynaceae

Genus: Plumeria

Species: P.alba

Scientific Name: Plumeria alba L.

Common Names:

English: White Champa.

Hindi name: Champa.

Kannada: Sampige.

Marathi: Chafa.

Description:

1. **Habit & Habitat:** soft-wooded erect tree with 5-8 m high, Small tree.
2. **Distribution:** Native to Central America and Caribbean, but now it is commonly found in Asia aslo.

3. **Morphology:**

Leaf: Obovate-oblong or lanceolate, acute at the apex, glabrous, stiff, main nerves clear, parallel, joining in an intramarginal one.

Inflorescence: Terminal many flowered cymes.

Flower: White, pale yellow or rose or reddish, with a yellow centre. Calyx lobes 2-3 mm long retuse at the apex, pubescent outside and ciliate at the margins. Corolla tube 2 cm long, lobes 3-2 cm obovate, pubescent inside, glabrous outside.

Fruit: Follicles rarely produced, in pairs.

Seeds: large, flat, glabrous.

Flowering and Fruiting Time: November – July.

4. **Propagation:** by seeds and cuttings.

5. ***Importance:**

The bark is a violent purgative. The tree is commonly cultivated for its flowers. Is used in the treatment of blennorrhagia, herpes and syphilis.

6. **Location:** Botanical Garden, Library – Gymkhana.

Pukar - Java Fig Tree



Ficus benjamina

Summary

Scientific Classification

Kingdom: Plantae

Division: Angiosperm

Class: Dicotyledonae

Order: Rosales

Family: Moraceae

Genus: Ficus

Species: F.benjamina

Scientific Name: Ficus benjamina (Miq.) Barrett.

Common Names:

English: Fig plant, Java fig.

Hindi: Pukar.

Marathi: Nandarukh.

Description:

1. **Habit and Habitat:** ong evergreen tree, grown in full sun or shade.Susceptible to frost climate.Terrestrial habitat.
2. **Distribution:** Native to Asia, Malaysia, Australia and parts of Pacific region.
3. **Morphology:**
 - Leaf:** Alternate, pinnate, evergreen, ovate leaves.They drop from branches hence the name weeping fig.
 - Infloroscence:** Hypanthodium, receptacles, solitary, sessile.
 - Flower:**
 - Male Flower: Shortly pedicellate, abundant stamens.
 - Female Flower: sessile in nature.
 - Fruit:** Synconus and is specialized structure.
 - Flowering and Fruiting Time:** February – April.
4. **Propagation:** By cutting.
5. **Importance:**
 - Grown as ornamental plant. Used as medicinal plant. Used to extract rubber.
6. **Location:** Infront of Chem. Staffroom.