

## COMPENDIUM ON SDG 15

### LIFE ON LAND

2020-2021



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## **1. INTRODUCTION**

To protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss have always been at the centre of considerations while policy formulation relating to the environment.

Terrestrial ecosystems including forests and wetlands provide goods such as timber, raw materials for construction and energy and food for all. Besides, a series of ecosystem services including maintenance of soil quality, provision of habitat for biodiversity, maintenance of water quality, as well as regulation of water flow and erosion control, are provided by land ecosystems.

Humans depend on earth and the ocean to live. This goal aims at securing sustainable livelihoods that will be enjoyed for generations to come. The human diet is composed 80% of plant life, which makes agriculture a very important economic resource. Plant life provides 80 percent of the human diet, and we rely on agriculture as an important economic resource. Forests cover 30 percent of the Earth's surface, provide vital habitats for millions of species, and important sources for clean air and water, as well as being crucial for combating climate change.

Land and forests are the foundation of sustainable development. Forests, in addition to providing food security and shelter, are key to combating climate change, protecting biodiversity and are home to the indigenous population. Forests are home to more than 80% of all terrestrial species of animals, plants and insects. At the same time, around 1.6 billion people also depend on forests for their livelihood, including some 70 million indigenous people. While 15 percent of land is protected, biodiversity is still at risk. Nearly 7,000 species of animals and plants have been illegally traded. Wildlife trafficking not only erodes biodiversity, but creates insecurity, fuels conflict, and feeds corruption.

Urgent action must be taken to reduce the loss of natural habitats and biodiversity which are part of our common heritage and support global food and water security, climate change mitigation and adaptation, and peace and security.

This necessitates urgent action to be taken to reduce the loss of natural habitats and biodiversity which are part of our common heritage and support global food and water security, climate change mitigation and adaptation, peace, and security. Hence Goal 15 aims to protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combating desertification, halt and reverse land degradation and halt biodiversity loss, contributing to flourishing life on earth.

## **2. JSSAHER SUPPORTING LIFE ON LAND-SDG 15**

JSSAHER has taken various action plans to sustainably manage and protect aquatic ecosystems and environmental conservation to avoid significant adverse impacts by environmental education and environmental conservation outreaches. JSSAHER has offered various environmental science and conservation programs at UG, PG and PG diploma level in both regular and open distance learning mode that certainly make an individual to know about the importance of environmental conservation and management of various environmental components. It has organized various environmental conservation walkathons and ecosystem restoration drives, awareness and education programs, national and international environmental events to bring resilience towards sustainable conservation of land and water ecosystems and control or eradicate the priority species. JSSAHER has implemented various technological and management strategies towards conservation of environmental and reduction of carbon food prints by declaring the campus as vegetarian, plastic free, eco-zone, etc. It has extended eco-friendly services like bicycle services, paperless communication in the campus including less energy consuming lighting, water saving toiletries and tap system in support of conservation and helping life on land.

### **JSSAHER FOCUS ON THE NINE "OUTCOME TARGETS"**

There are 12 targets in Goal 15 to measure the changing health and status of terrestrial ecosystems. A total of 16 indicators have been identified at national level to measure and monitor the progress of these targets with a focus on the nine outcome targets.

#### **JSSAHER'S progress towards the nine "outcome targets"**

- Conserving and restoring terrestrial and freshwater ecosystems.
- Ensuring conservation of mountain ecosystems.
- Protecting biodiversity and natural habitats.
- Protecting access to genetic resources and fair sharing of the benefits.
- Eliminating poaching and trafficking of protected species.
- Preventing invasive alien species on land and in water ecosystems.
- Integrating ecosystem and biodiversity in governmental planning.
- Increasing financial resources to conserve.
- Sustainably using ecosystem and biodiversity.

The nine outcome targets are worked through following strategies supporting SDG 15:

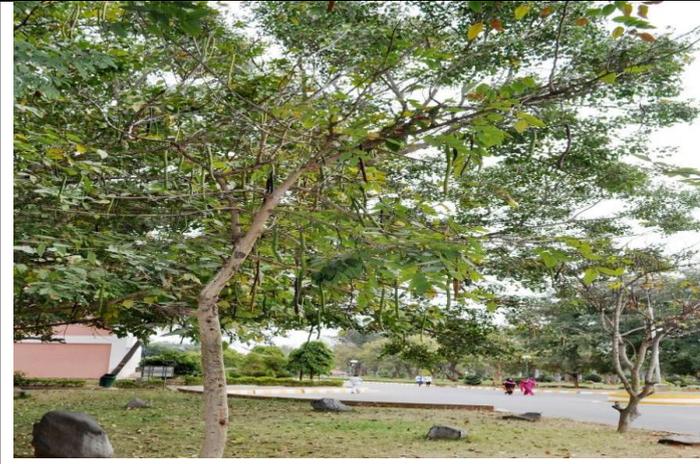
1. Curriculum enrichment matching the requirement
2. Research and publications
3. Outreach and community services
4. Nature club and awareness
5. Animal protection and adoption
6. Inhouse Conservation measures
7. Endangered species protection and care

### **3. GREEN CAMPUS SUPPORTING BIODIVERSITY- JSSAHER GREEN CAMPUS INITIATIVES**

The Institution also has included a subject Environmental Sciences in all courses as stipulated by UGC and organizes Environment Day and Water Day. The Institution believes in preserving traditional medicine and has established medicinal plants garden and promotes eco-friendly cultivation practices by organizing medicinal plants exhibition in JSS Urban Health Centre. To meet the needs and sustainable management of fresh water, the rainwater harvesting, and utilization systems have been established in all the campuses of the university to aid towards the greater objectives of water management and conservation and increasing recharge of groundwater by capturing and storing rainwater, rainwater harvesting from rooftop run-offs and natural water bodies and the community development. The below mentioned models are established in the various buildings based on the size of the building and the extent and topography of the land.

- Simple roof water collection systems - Most of the rooftop rainwater harvesting has been completed by constructing five water storage structures with a storage capacity of 1000 m<sup>3</sup>.
- Land surface catchments – a simple way of collecting rainwater by retaining the flows (including flood flows) of small creeks and streams in small storage reservoirs (on surface or underground) created by low-cost dams
- Collection of storm water – The surface runoff collected in storm water ponds/reservoirs is subject to a wide variety of contaminants and every effort is made to keep these catchments clean.





#### **4. JSS AHER CAMPUS-HOME FOR BIRDS AND ENDANGERED SPECIES**

JSS AHER is a green campus with nearly 2400 trees turning the campus into bird habitat. The campus has accommodated nearly 30 species of birds of which few are having biological importance. The common bird species found in the campus are Rock pigeon, common myna, crow, sparrows, Brahminy Kite and, red napped ibis spotted owlet. The other important species include Indian grey hornbill, black-necked ibis and Indian spotted eagle are of threatened /near threatened categories have footfall in the campus The green environment provides shelter for many birds including rare birds like Chestnut-headed Bee-eaters, Swinhoe's Snipe Gallinago mekala etc and also the serene garden has decorative shrubs and numerous flowers bearing plants that develops an ecosystem with beautiful honey bees, colourful insects and ants etc. The beautiful landscaping and gardens reflect JSSAHER's emphasis on environmental sustainability. Also, the ecosystem gardening forms a cohesive and balanced environment for healthy campus living.

#### **JSSAHER NEST FOR BIRDS:**

##### **Indian spotted eagle:**

This bird is the largest south Asian bird predator, with 60cm in length and 150cm wingspan. It is a vulnerable species found in the South Asian region. Prominent white spots in the brown feather are identification marks. This can usually fly high and can be found on high raised buildings; sighted on the top of the Medical College building, on any time of the day.

Small owl found in tropical Asia and mainland of India found in hollows or cavities of trees. These are often found near human settlements for the availability of prey base. Prominent white spots on the grey, brown feather fetches the name spotted owlet. These are least concerned species and endangered according to IUCN. This bird live in the campus of School of Life Science of JSSAHER .





**Indian Gray hornbill:**

Common hornbill found in Indian subcontinent, always sighted in pairs. Name of the bird come from the structure on the beak. The color of the bird is usually gray found on large trees in urban regions. At campus, these birds are sighted near FLS Parking Lot.



**Brahminy Kite:**



***Chestnut-headed Bee-eaters***



***Swinhoe's Snipe Gallinago megala***



***Black headed Ibis***



### **Haliastur indus:**

Bird found in Austrails and south Asia, found in Mysore, India are *Haliastur indus indus*. It is a predatory organism, depends on fish, small animals like rat, snakes. They are usually flying around JSSAHER Campus, preying on rodants and insects during the daytime.

### **Black headed Ibis:**

Indian White Ibis or Black necked Ibis are found in the south and southeastern parts of Asia. Adults measure about 65-75 cm in length with distinct white body and neck and beak are black whereas juveniles are grey in color. They are usually sighted during monsoon season; at our campus Black necked Ibis were spotted near water hole of the campus in the early mornings.

### **Scaly breasted munia:**

Also called as Nutmeg mannikin, categorized as least concerned species under IUCN. Identification marks include prominent feather markings on breast and belly. These birds are usually sighted in the evenings near the water sprinkler in the campus.

Other Birds found in the in the campus are:

1. Red vented Bulbul
2. Purple sunbird
3. Red Whiskered bulbul
4. Purple ramped sunbird
5. Cattle egrat
6. Rose ringed parakeet
7. Laughing dove
8. Common Myna
9. White cheeked barbet
10. Common Kingfisher
11. Greater coucal
12. Asian koel
13. Oriental megpin robin
14. Pond heron
15. Red wattled lopwing
16. Indian golden oriole
17. Indian robin
18. Wagtail Sp.
19. Tailor Bird
20. White rumped munia
21. Little egrat
22. White throated kingfisher
23. Woodpecker sp
24. Coppersmith barbet

## 5. JSSAHER HOME FOR THE FOLLOWING ENDANGERED BIRDS OF WESTER GHATS

At least 10 birds endemic to the Western Ghats listed under Red List of IUCN are found in JSSAHER Campus

The following birds in red list of IUCN are found in JSSAHER Campus

Scientific Name	Common Name	IUCN Status
<i>Psittacula columboides</i>	Bluewinged Parakeet	Least concern
<i>Ocyceros griseus griseus</i>	Malabar Grey Hornbill	Least concern
<i>Anthracoceros coronatuscoronatus</i>	s Malabar Pied Hornbill	Near threatened
<i>Columba elphinstonii</i>	Nilgiri Wood-Pigeon	Endangered
<i>Dendrocitta leucogastra</i>	Southern or Whitebellied Treepie	Least concern
<i>Pycnonotus priocephalus</i>	GreyheadedBulbul	Least concern
<i>Turdoides subrufus hyperythrus</i>	Rufous Babbler	Least concern
<i>Garrulax cachinnans</i>	Nilgiri Laughing Thrush	Endangered
<i>Garrulax deleserti</i>	Wayanad laughing thrush	Least concern
<i>Garrulax jerdoni fairbanki</i>	White breasted Laughing Thrush	Least concern
<i>Ficedula nigrorufa</i>	Black-and-Rufus Flycatcher	Near threatened
<i>Eumyias albicaudata</i>	Nilgiri Flycatcher	Near threatened
<i>Schoenicola platyura</i>	Broadtailed Grass Warbler	Vulnerable
<i>Brachypteryx major albiventris</i>	White bellied Shortwing	Vulnerable
<i>Anthus nilghiriensis</i>	Nilgiri Pipit	Near threatened
<i>Nectarinia minima</i>	Crimson-backed Sunbird	Least concern

## **6. NATURE CLUB OF JSSAHER**

### **Activities:**

1. Ensuring greenery in and around the campuses of JSS AHER
2. May develop at least one plant by each member. And, nurturing it till 1 to 5 years becomes the responsibility of the member (including bonsai plant)
3. work for ensuring green resilience
4. Identifying the grey areas (for ensuring the smart elements) and finding solutions to strengthen the smart campus initiative.
5. Providing/ educating the stakeholders/community by all ways/means and create awareness to understand the need for supporting these activities of Sustainable Development Goal of UNO
6. Providing formal and informal education to the stakeholders of JSS AHER and to the community (certificate programme/ 10 to 20 hrs of formal teaching...)
7. Adopting animals from the authorised agency/ Govt
8. committed for eradicating all sort of menace (for the campus and campus inmates/stakeholders "Health and well being")
9. Inclusiveness should be the riding clause of all activities

### **Responsibility:**

1. Implementation of the identified/ listed activities becomes the responsibility of the member secretary, group leaders and volunteer members.
2. Continuously if a member is not able to attend the activities in the desired duration more than 3 consecutive months, he/she may automatically lose their membership.
3. Supporting SDG's and contributing to that should be the spirit of it.

**Theme:** "Let out attitude and develop inclusiveness for better tomorrow"

May formulate things and seek the guidance of the authorities to have formal JSS AHER GREEN CLUB.

## **7. ANIMAL CONSERVATION THROUGH ANIMAL ADOPTION - AN INITIATION TO PROMOTE LIFE ON LAND**

### **Animal Adoption from Nature Club JSS AHER, Mysuru**

Mysuru/Mysore “THE HERITAGE CITY OF WESTERN GHATS” is famous for tourism globally, famous among them being Sri. Chama Rajendra Zoological Gardens. The Mysuru Zoo is more than century old (*Established in the year 1892*) and has international recognition for having more than 151 species of animals.

Covid-19 pandemic situation has not spared Mysuru Zoo. Maintenance of food, shelter, health, and other facilities for Zoo Animals are maintained by the funds generated from the tourist entrance fee collection.

Due to Covid-19 prevailing condition, the Zoo was closed for many months in the year 2020 and the tourists visited during 2020 were very less in number. This has resulted in less funds for maintenance of the Zoo and its animals.

For its sustainability, JSSAHER felt necessary to exhibit our social responsibility by adopting one/few animals in zoo depending upon the kind donations of family members of JSS AHER, this being a noble cause.

Staff and student of JSS AHER Family contributed largely under **Nature Club JSSAHER** and adopted four animals.

The animals which were adopted were-

- Tiger
- Lion tailed macaque
- Mouse deer
- peacock

### **Need for Animal Adoption**

The adoption programme is a novel way to show your support and care for wild animals. By adopting your favourite animal, you will contribute towards feeding of the animal for one full year (or period of adoption), and would be a part of Mysore Zoo’s efforts in wildlife conservation. Mysuru Zoo is involved in captive breeding programme of endangered species and other conservation projects which require the support from the community.

The JSS Academy of Higher Education and Research, having understood the importance of contributing to animal adaption for the animals in Mysore zoo has started JSSAHER Nature club. This club as a part of the initiative took to collect voluntary contribution to support towards animal adoption.

### **Animal Adoption at Mysuru Zoo from “JSS AHER Nature Club”**

Mysuru is a place of tourism & historically know for Mysuru palace, Zoo, KRS, Chamundeshwari temple... Presently, because of the pandemic situation since March 2020, tourism is at great threat and in turn its maintenance as the main source of income is generated through the entrance fee. Protecting the cultural heritage of the city becomes the responsibility of each & every responsible citizen.

To commemorate the National Wildlife Day a plea was circulated intending for adoption of Animals at Zoo through “ JSS AHER Nature Club”. As a response within 3 days span, 1.20 lakhs+ have been donated by family members of JSS AHER for the noble cause & this shows our inclusiveness & kindness.

The details donation are as below:

<b>Sl No</b>	<b>Name of the JSS AHER Institutions</b>	<b>Amount collected</b>
1	JSS AHER	27,800
2	JSS Medical College, Mysuru	28,200
3	JSS Dental College & Hospital, Mysuru	23,600
4	JSS College of Pharmacy, Mysuru	20,000
5	JSS College of Pharmacy, Ooty	10,800
6	Life Sciences & Natural Sciences Depts	6,600
7	Dept of Health System & management Studies	2,400
8	Dept of Nutrition & Dietetics	1,600
	<b>Total Amount</b>	<b>1,21,000</b>

## **Benefits of Animal adoption:**

Proposed the list of Animals for adoption was decided in the meeting held on 12.09.2020

1. Create inclusiveness by joining hand for the noble cause during tough time & hand holding.
2. Exhibits generosity & Influences to have better world: Creates of feeling of contribution (irrespective of the amount) & exhibits the kindness of the individual.
3. Gesture of selflessness of officials/staff of JSS AHER (through it is proposed under the umbrella “JSS AHER Nature Club” & not with individual entity)
4. Visibility of JSS AHER in the noble cause (as the contributor details will be put up Infront of the adopted animal).
5. Supporting Life on Land (Intangible benefit)- Indirectly supporting the SDG’s of UNO
  - SDG 13- Climate action: Take urgent action to combat climate change & its impacts (Through Education)
  - SDG 15 Life on Land:- Protect, restore & promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, & halt & reverse land degradation & halt biodiversity loss (Societal responsibility- Supporting for maintenance of Ecology)
  - SDG 16- Promote peaceful & inclusive societies for sustainable development and inclusive Institutions at all levels (Gesture of selflessness)
6. Protecting endangered animal/Species (being on of the cause of Zoo authority)
7. Creating awareness amongst the stakeholders through JSS AHER Green Club
8. Promotion of Eco friendly activities supporting the sustenance of Ecology through promotion of broader framework for JSS AHER Nature club will be worked out & submitted on due course.

JSS AHER Nature club has generous in contributed amount of Rs.1,21,000/- (by the family members of JSS AHER) for adoption of listed animals.

<b>Category</b>	<b>Animal Name</b>	<b>Amount of Contribution</b>
A	Tiger	1,00,000
B	Nilgiri Langur	10,000
C	Mouse deer	7,500
D	Peacock	3,500
	<b>Total Amount</b>	<b>1,21,000</b>

## **8. JSSAHER ENSURES THE CONSERVATION, RESTORATION AND SUSTAINABLE USE OF TERRESTRIAL AND FRESHWATER ECOSYSTEMS AND THEIR SERVICES, IN PARTICULAR FORESTS, WETLANDS, MOUNTAINS, AND DRYLANDS, IN LINE WITH OBLIGATIONS UNDER INTERNATIONAL AGREEMENTS.**

### **Utilise sustainable water extraction technology:**

In JSS AHER campus, we have installed Ultra Filtration plant of capacity 3000 LPH , at Girl's hostel building (G+7 floors), where all the rooms are provided with attached bathrooms. This plant is to avoid residual scale formation in pipelines & bathroom fittings due to more hardness in borewell water. Which in turn maintenance cost will be more as well often & often CP fittings will goes spoil due to this scale formation.

Reject water (wastewater coming after treatment) is about 75% of the treated water. This reject water will be made use for watering the greenery of the campus. As a result of this, easy flow of water in pipelines will be there without any clogging. Another thing is, life of bathroom fittings also will be more when we compared to the use of direct borewell water without any treatment for bathrooms.

We are having Reverse Osmosis plant of capacity 3000 LPH for supplying water for drinking purposes, Kitchens, Dental chairs, Laboratories etc., where we need little soft water. Here reject water will be more when we compared to UF plant. So, quantity of treated water & reject water is of same. This wastewater also will be channelised to feed greenery areas.

We have installed 25KLD STP plant of Bio-digester Vortex system exclusively for Guest house wastewater treatment (Pilot plant). In this system no chemicals are used to treat, no sludge formation, odourless treated water, low carbon footprint etc., Treated water is connected to the sprinklers of the garden area.

In guest house, we are having rainwater collecting tank of capacity 10K Ltrs to collect all terrace & courtyard rainwater, this water will be pumping for nearby garden sprinklers & for watering surrounding plants.

In JSSCPM campus also, we have installed individual RO units for Girl's hostel, Boy's hostel & Admin blocks to get treated water for cooking & for drinking purposes. Reject water will be used for watering lawns/garden etc.,

The JSSAHER has adopted many rainwater harvesting systems like pits done by inserting concrete rings by following all procedures for ground re-charging, 2 to 3 nos. of huge rainwater harvesting pits etc.,

## 9. WATER CONSERVATION -RAINWATER HARVESTING AND RETENTION FACILITY IN THE CAMPUS IN SUPPORTING LIFE ON LAND

### Rainwater harvesting



# Rainwater purify photos



## 10. THE CONSERVATION TREE PLANTING PROGRAM

A program of JSSAHER , distributing trees and shrub seedlings every a year to student volunteers to plant them in the biosphere of NSS and out reach activities. This group works to plant trees and conserve forests across the Mysore and Nilgiris District.

Tree plantation is one of the major activity along with vermicomposting and development of sustainable technology for water treatment and wastewater reclamation technology that using natural sunlight as an alternative driving energy are the main activities at JSSAHER to support life on land.

Small shrub are planted in the garden in the campus to hold back the garden side yard, which hold back water and sand. Thus, avoiding soil erosion and water logging preventing the loss of trees and plant during monsoon rainy season. The campus gives high priorities for repairing storm damaged trees and immediate replacement of fallen trees.



**Plant nursery in the campus**



NSS Volunteers participated in the “ Swachh Bharat Mission” at the Nanjanad village. The students were briefed at the DRDA office latter they went for field work to Nanjanad village and created an awareness in the village people on cleanness, sanitization, defecation and various swachh initiatives.Celebrated International Yoga day at the campus.

NSS Volunteers along with the official of the Forest Department organized the “Tree Plantation Program” under the scheme of “Jalaskathi Abiyan” to create an awareness on tree plantation in Thalaikunda forest area which was initiated by The Nilgiris District Collector and Assistant Conservative Forest officer.

The awareness and plantation of indigenous and solar grass varieties in The Nilgiris Library which was organized by the Youth Red Cross. Thirty NSS Volunteers were took part in that event and planted the indigenous and solar grasses in The Nilgiris Library.

Dental screening program was conducted at PUM School in association with the JSS Dental College, Mysuru at Mayor. About 7 of our JSSCPO NSS volunteers actively participated in this outreach program. Around 100 members of that village were benefited the dental screening program.

The NSS Volunteers were participated in “Tea Promotion Campaign” organized by the Tea Board India which was held at Tribal Resource Centre and we have got third prize in the event. This event was initiated by the District Assistant Collector.









## The details of the trees available in JSSAHER Campus in Mysore.

Total Trees in JSSAHER Campus at Mysore is around 1500

Total Trees in JSSAHER Campus at Mysore is around 250

Sl. No	Scientific name	Common name	Total no's	Uses
1	Morinda coreia	Indian mulberry ಮುಟ್ಟಿ ಮರ	10	The bark is tonic, astringent, febrifuge and antiseptic.
2	Roystonea regia	Royal palm ರಾಯಲ್ ಪಾಮ್	67	Landscape usages
3	Pithecellobium dulce	Monkey pod ಬೆಟ್ಟದ ಹುಣಸೆ	25	Leaf decoction is taken for leprosy, jaundice and for proper growth of hairs. Plant paste is applied for poisonous bites.
4	Terminalia arjuna	White murdah ಅರ್ಜುನ್ ಮರ	05	Bark decoction is the best cardiac tonic and highly recommended for nervous debility. It also helps to reduce high blood pressure.
5	Terminalia catappa	Indian almond tree ಕಾಡು ಬಾದಾಮಿ	07	Bark powder is used as tooth powder in case of gum diseases, mouth ulcers and thrush in tongue. Leaves cooked with rice are eaten for gastritis.
6	Araucaria columnaris	Christmas tree ಕ್ರಿಸ್ತಮಸ್ ಮರ	04	Landscape usages
7	Pongamia pinnata	Hongay oil tree ಹೊಂಗೈ ಮರ	64	Bark cooked with rice is eaten for three days in case of uterine diseases and conception failure. Bath with leaf decoction is recommended for arthritis and rheumatism.
8	Grevillea robusta	Southern silky oak ಸಿಲ್ಕಿಡ್ ಮರ	56	Ornamental Fuel
9	Azadirachta indica	Neem ನೇಮ್ ಮರ	52	Bark powder is recommended for septic wounds. Neem oil is applied for healing wounds and ulcers.
10	Albizia lebbek	East Indian walnut ಬಾಗೆ ಮರ	28	Seed decoction is given for piles and to stop purgation. Leaf and bark powder are applied for ulcers as well as snake bite.
11	Swietenia mahagoni	West Indian mahogany ಮಹಾಗನಿ ಮರ	14	Timber
12	Cocos nucifera	Coconut ಕೊನೆ ಮರ	70	Tender coconut water is the antidote for indigestion caused by beaten rice. Paste of leaf ash fried with ghee is applied for old chronic ulcers and wounds
13	Areca catechu	Arecanut palm ಅಡಿಕೆ ಮರ	20	Decoction made of its root, Cocos nucifera root and salt are used as a gargle for toothache. Young fruit (ground) is given as a sour agent for thrush in tongue.
14	Delonix regia	Royal gulmohur	17	Antispasmodic and antirheumatic.
15	Ficus benghalensis	Banyan tree ಅಲದ ಮರ	02	White terminal portion of prop root ground in milk is given for burning sensation and is a general tonic. Paste prepared from its bark, castor oil, bee wax and turmeric are used as a quick healer for cracks in feet.
16	Ficus racemosa	Cluster fig ಅತ್ತಿ ಮರ	02	Fruit juice is used for gastritis. Bark paste is applied to ulcers or boils on body due to excessive heat.
17		ರೈಟ್ಟು ಮರ	10	
18	Wrightia tinctoria	Pala indigo ಬೆಳ್ಳು ಮರ	02	Leaf paste is filled into dental cavities for toothache and cavities. Leaf paste in coconut oil is applied for skin diseases.
19	Bauhinia purpurea	Butterfly tree ಬಸವನ ಪಾಡ ಮರ	03	Stem bark decoction is given for diarrhoea, ulcers, swellings, leprosy, cough and menstrual irregularities
20	Lagerstroemia microcarpa	Virgin tree of the forest ಸಂದಿ ಮರ	02	Leaf or young shoot tip paste is applied for cuts, wounds and for skin diseases
21	Albizia amara	Bitter albizzia ಸುಖಲ್ ಮರ	02	Medicinal and agroforestry
22	Ficus religiosa	Peepal tree ಅರಳಿ ಮರ	08	Young shoot tip ground and boiled in milk is given for dysentery and amoebiasis
23	Millingtonia hortensis	Indian cork tree ಅಕಾರ್ ಮುಳ್ಳಿಗೆ	42	Bark decoction is recommended internally for fever, cold, indigestion and diarrhoea
24	Acacia catechu	Red cutch ಕಾರಿ ಮರ	01	Twig is used as toothbrush for strengthening teeth and gums. Bark decoction is used as a gargle for mouth ulcers
25	Plumeria rubra	Temple tree ದೇವರೋಗಿ	32	Bark cooked with rice is taken for jaundice, venereal diseases and joint pain
26	Saraca asoca	Asoka tree ಅಶೋಕ ಮರ	171	Bark decoction is used for menstrual problems, dysentery, diarrhoea and as a blood purifier
27	Ficus benamina	Golden fig ಜಾವ ಹತ್ತಿ ಮರ	01	Medicinal and agroforestry
28	Artocarpus heterophyllus	Jack fruit tree ಹಲಸಿನ ಮರ	07	Fruit is nutritive and it clears excretory system. Seeds are sweet with aphrodisiac action
29	Aegle marmelos	Bael fruit ಬೆಲ್ಮೆಟ್ಟಿ ಮರ	03	Leaf juice is given to children suffering from stomach-ache. Leaf is eaten for diabetes.
30	Sapindus laurifolia	Soapnut ಅಂಟೆಬಾಳ ಮರ	01	Folk medicine and insecticide
31	Thespesia populnea	Cork tree ಬಾಗರಿ ಮರ	05	Fruit and bark decoction is much used to wash for septic wounds and ulcers
32	Prosopis cineraria	Indian mesquite	02	Astringent and coolant

34	Tabebuia aurea	Caribbean trumpet-tree അമരം മരം	40	Ornamental and timber
35	Tamarindus indica	Tamarind tree തമരം മരം	09	Leaf decoction is poured over the body parts to relieve rheumatic pain. Steam of boiled fruit juice is given for pain.
36		അമരം മരം	02	
37	Cassia javanica	Pink shower പുഷ്പമരം മരം	06	Widely planted as an ornamental. The wood is used for general construction, furniture and cabinet making
38	Cassia fistula	Indian laburnum കിഴങ്ങ് മരം	09	Bark paste is applied for skin diseases. Juice collected from heated fruit is taken to expel intestinal worms
39		മിമി മരം	02	
40	Alstonia scholaris	Indian devil tree അട മരം	01	Bark is used to treat asthma, heart disease, for chronic ulcers, and other ailments. Powder mixed with ginger is given to new mothers the first day after birthing to cleanse the blood and promote lactation.
41	Santalum album	Indian sandalwood സന്ദലം മരം	08	Sandalwood oil was used traditionally to treat skin diseases, acne, dysentery, gonorrhoea,
42	Callistemon	Bottlebrush tree പാലം പൂമ്	17	Antibacterial and ornamental
43	Holoptelea integrifolia	Indian elm അമരം മരം	04	Oil prepared from its bark is used for chronic ulcers. Bark paste is applied to the spot of pit viper bite and to arrest bleeding from wounds
44	Hevea brasiliensis	Rubber മരം മരം	04	Rubber and timber
45	Mangifera indica	Mango tree മാങ്ങ മരം	06	Bark cooked with rice is given for gastritis. Seed kernel ground in butter milk is applied on head for dandruff
46	Michalea cham paca	Golden champa ചാമ്പ മരം	18	Agroforestry, fuels and oil
47	Elaeocarpus ganitrus	Woodenbegar മരം	02	Ground seed is given to small children for increasing intellect and memory power. Wearing its seeds as necklace is said to control CNS.
48	Melia dubia	Malabar neem wood മീര് വൃക്ഷ മരം	18	Leaf juice or extract is used both externally and internally as a haemostatic agent
49	Annona reticulata	Bullock's heart അമ്മം മരം	01	Fruit is beneficial for tuberculosis. Dried fruit extract is given for dysentery
50	Syzygium cumini	Black plum മരം	02	Seed powder or bark decoction is much used for diabetes. Bark decoction is recommended for ulcers in the mouth, diabetes, and liver disorders
51		പോളിയോ മരം	35	
52	Tectona grandis	Teak മരം	1450	Fresh leaf and fruit extract are applied for mouth ulcers and itches in the body. Seed and flower decoctions are diuretic

#### Various trees available in JSS College of Pharmacy, Ooty campus

Sl No.	Name of the Tree	Nos. available
1.	Acacia	39
2.	Cypress	10
3.	Eucalyptus	21
4.	Jacaranda	06
5.	Silver Oak	17
6.	Pynes	01
7.	Plums	31
8.	Peaches	10
9.	Bottle Brush	19
10.	Photo Creeper	20
11.	Jungle Wood	75
<b>TOTAL</b>		<b>249</b>

# 11. SUSTAINABLE FARMING AT JSSAHER

## BANANA PLANTATION & HARVEST AT JSS HOSTEL CAMPUS- SELF SUFFICIENCY AND SUSTAINABILITY



## Sustainable farming at JSSAHER helps in supporting the following SDGs

### JSS ACADEMY OF HIGHER EDUCATION & RESEARCH JSSAHER Hostel

List of vegetables and green leaves grown in our hostel premises during the period from 01.01.2020 to 30.10.2021

- Coriander
- Spinach
- Curry leaves
- Amaranth
- Brinjal
- Tomato
- green chili
- Moringa
- Sapota
- Banana

### JSSAHER SUSTAINABLE FARMING SUPPORTS THE FOLLOWING SDGs

**SDG 15 (Life on land)** Kitchen garden & farming is developed by our inhouse team voluntarily and growing organic ,garden fresh ,quality greens, vegetables and fruits for the inhouse consumption of hostel inmates and visitors is helping the life on land

**SDG 12 (Responsible consumption and production)** Kitchen garden & farming is developed by our inhouse team voluntarily and growing organic -garden fresh -quality greens, vegetables, fruits for the inhouse consumption of hostel inmates. This small initiative has boosted up their potentiality, imbibed confidence to do better, think out of box concept for optimal utilization of all sorts of energy. This selfless work and keenness exhibited is the exemplary work of the hostel workers in taking care of their inmates.)

**SDG 2 (Zero hunger)** Kitchen garden and farming is developed by our inhouse team voluntarily and growing organic -garden fresh -quality greens, vegetables, fruits for the inhouse consumption of hostel inmates

Hunger is not only hunger due to poverty; but, it has satisfied the

- hunger of knowledge by experimenting new things and waste management
- contentment in their work as they were part of producing quality food for the consumption of hostel inmates who are away from their home town and encouraging them to have balanced diet and maintenance of nutritional level
- hunger of optimal utilization of resources - exhibits their belongingness/ inclusiveness in their work in way of shramadana (by way of investing their physical energy)

**SDG 3 (Good health and well being)** - The team of dedicated workers take care of the Good health and well being of the hostel inmates by preparing and serving healthy nutritious food; but also exhibits their sense of moral responsibility of taking care of the health of the hostel inmates by voluntarily and growing organic -garden fresh -quality greens, vegetables, fruits for the inhouse consumption of hostel inmates.

**SDG 4 (Quality education)** - The act of selflessness of the inhouse team voluntarily growing the organic garden fresh -quality greens, vegetables, fruits for the inhouse consumption of hostel inmates itself indirectly bringing the culture of developing kitchen garden at the houses in course of time and imbibe the essence of inclusiveness, moral responsibility... are the intangible benefits in bringing up Quality Education.

## **12.VERMICOMPOST ACTIVITIES OF JSS AHER**

The green wastes from the garden are processed in the in-house vermicomposting pits. Two vermicompost pits are established in the isolated area of the campus which can accommodate 250 kg of green wastes. The green wastes such as grass, leaves, straw, other plants/trees shreds are collected and lined/ dumped in the pit. These materials are covered with manure sand and worms were added and allowed to decompose for a period of one month. The vermicompost are collected and used as organic manure for the garden, which helps to maintain the natural ecosystem of the garden. Thus, JSSAHER contribute for the sustenance and revitalization of terrestrial living system



## 13. CONSERVATION OF ECOSYSTEMS THROUGH MEDICINAL PLANTS CULTIVATION -MEDICINAL PLANTS CONSERVATION

JSSAHER has established an impressive garden with collection of over 500 plant species in a total plinth area of one acre and we practice soil stewardship by not using pesticides on in the garden.



Conservation of Ecosystems by cultivating rare and endangered species of medicinal Plants. The Department of Pharmacognosy was established i to keep abreast of the rapid developments in the knowledge and utilization of medicinal plants. There is an ever-increasing acceptance for the past three decades for herbal drugs all over the world. The universal role of plants in the treatment of disease is exemplified by their employment in all the major systems of medicine. The department is involved in the protection of endangered medicinal species and the isolation of new drugs and lead compounds from traditional remedies.

### **Medicinal plants exhibition**

The department of Pharmacognosy, JSS College of pharmacy conducted the medicinal plants exhibition at the Govt. Botanical Garden, Ooty every year. The exhibition has the intension of creating awareness to the public about the utilization and importance of medicinal plants growing in this biosphere and elsewhere.

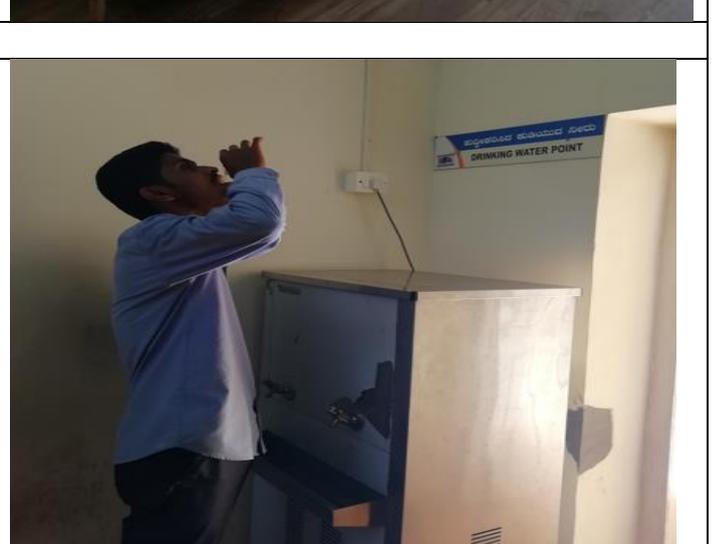
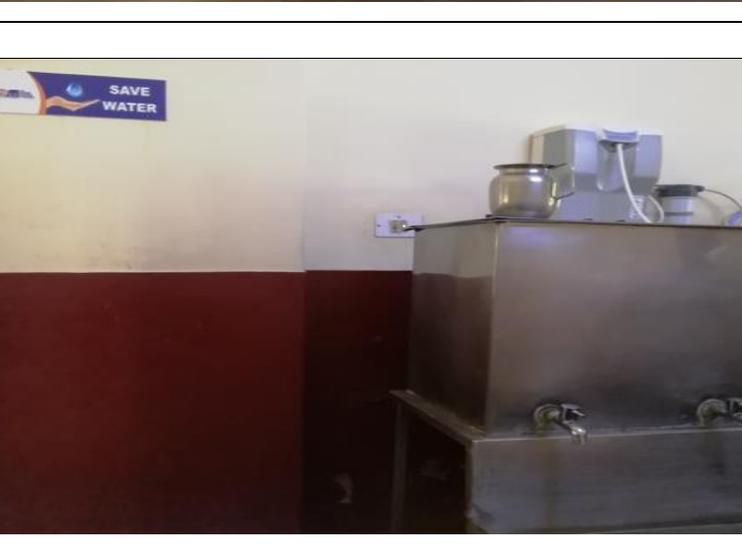
## 14. SUSTAINABLE PRACTICES IN JSSAHER'S HOSTELS

**JSSAHER Hostels and Campus Maintenance Committee understands that sustainability is a way of life and practices organic inhouse farming to cater the need of fresh vegetables and fruits of the staff and students.**

- JSSAHER grows own organic vegetables and fruits and source them from organic farmers from the village and is used to produce biogas and bio compost.
- 80% of the energy the hostel uses comes from renewable sources, both solar and biogas energy and biogas heating system that produces zero CO2 emissions.
- Low energy lighting inside the hostel and activated lighting sensors in common areas such as corridors and garden.
- JSSAHER offers reusable bottles to buy/ borrow, thus reducing the use of plastic in campus.
- JSSAHE constantly raising awareness about the importance of sustainability in hostel campus.
- Kitchen waste, dead leaves from trees and food waste is composted on-site for making fertilizer, compost manure for the garden and farm.
- Tissues, paper napkins, toilet papers and cleaning products are completely biodegradable
- Bicycle facilities in hostel campus, promoting sustainability among students by helping them find ecological means of transport like cycling and walking .
- JSSAHER's Nature Club offers ecological hiking, cycle rides, book exchanges, and guided picnics, camps, outreach programs to nearby farm and villages to support eco-friendly activities.
- JSSAHER Hostels supporting SDG 15 (Life on land) - Kitchen garden & farming is developed by our inhouse team voluntarily and growing organic ,garden fresh ,quality greens, vegetables and fruits for the inhouse consumption of hostel inmates and visitors is helping the life on land
- JSSAHER Hostels supporting SDG 15 SDG 12 (Responsible consumption and production - Kitchen garden & farming is developed by our inhouse team voluntarily and growing organic -garden fresh - quality greens, vegetables, fruits for the inhouse consumption of hostel inmates. This small initiative has boosted up their potentiality, imbibed confidence to do better, think out of box concept for optimal utilization of all sorts of energy. This selfless work and keenness exhibited is the exemplary work of the hostel workers in taking care of their inmates.)
- JSSAHER Hostels supporting SDG 15 SDG 2 (Zero hunger)- Kitchen garden and farming is developed by our inhouse team voluntarily and growing organic -garden fresh -quality greens, vegetables, fruits for the inhouse consumption of hostel inmates
- JSSAHER Hostels supporting SDG 15 SDG 3 (Good health and wellbeing) - The team of dedicated workers take care of the Good health and wellbeing of the hostel inmates by preparing and serving healthy nutritious food; but also exhibits their sense of moral responsibility of taking care of the health of the hostel inmates by voluntarily and growing organic -garden fresh -quality greens, vegetables, fruits for the inhouse consumption of hostel inmates.
- JSSAHER Hostels supporting SDG 15 SDG 4 (Quality education) - The act of selflessness of the inhouse team voluntarily growing the organic garden fresh -quality greens, vegetables, fruits for the inhouse consumption of hostel inmates itself indirectly bringing the culture of developing kitchen garden at the houses in course of time and imbibe the essence of inclusiveness, moral responsibility are the intangible benefits in bringing up Quality Education.

- Reverse osmosis and filtration system are used and no chemicals are used for water treatment .

## Water Facility and consuming water



## 15. CONVERSION THROUGH BIODIESELS

Biodiesel can be produced from vegetable oil, animal oil/fats, tallow, and waste cooking oil. The process used to convert these oils to Biodiesel is called **transesterification**.

To overcome the problems of fuel and associated material, in Department of Environmental Science, students working on the extraction of oils and conversion of biodiesels are carried out under the guidance of Dr. Vadiraj K T. The biomass is being used to extract the energy and helps to achieve one of the sustainable development goals of affordable clean energy.

Dr. Vadiraj KT and his group to vaporize the plastic waste to useful fuels developed plastic pyrolysis reactor. This objective of this project is to reduce plastic waste and use it as better energy resource. The objective of this work correlated with the Affordable Clean energy and life on Earth goals of SDG



## **16. JSS HOSPITALS & URBAN HEALTH CENTRE SUPPORTING LIFE ON LAND**

<https://jsshospital.in/>

JSS Hospital in Mysore has a long history. To serve the needy and poor sections of the society and to bring quality medical service within the reach of the poor, His Holiness Dr. Sri Shivarathri Rajendra Mahaswamiji started J.S.S. Health Centre as early as in the year 1963 on a small scale, under the aegis of JSS Medical Service Trust. Thus the seed of the present Hospital was planted. It is currently an 1800-bed hospital with 35 specialties and super specialties. It is now serving as a teaching hospital to the JSS Medical College.

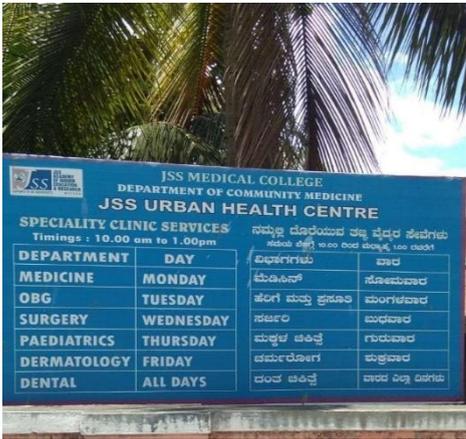
JSS Hospital is one of the pioneers in offering comprehensive medical services in Mysuru. A notable feature of this hospital is that it caters to the needs of the patients of rural parts of the districts viz., Mysuru, Chamarajanagar, Mandya, Coorg, and Hassan in Karnataka and Nilgiris in Tamil Nadu. It treats on average, 800 to 1000 patients daily in the outpatient department and has facilities to accommodate 1800 inpatients. Several health activities are organized in rural areas to create health awareness.

JSS urban health centre works under Department of Community Medicine, JSS Medical College, Mysore. The aim of the centre is to achieve the goal of health for all for the people residing in urban slum. The centre provides comprehensive health care services to the people that include preventive, promotive, curative and rehabilitative aspects. The JSS UHC caters to the population of 5294 of which 53% are males and 47% are females.

The centre provides a spectrum of services to the people mainly,

1. Out patient services
2. Provision of essential drugs at affordable costs.
3. Basic laboratory facilities.
4. Maternal and child health services including family planning.
5. Immunization.
6. Dental care
7. Referral services
8. Specialist services on weekly basis
9. Health education activities
10. Observation of National and International health days
11. Women empowerment
12. Training of Undergraduate and Post graduate students
13. DOTS centre





Total number of patients who received care in Urban health centre : 4266

Various activities conducted by JSS Urban Health Centre, Medar's Block, Bamboo bazar, Mysuru

**The centre provides a spectrum of services to the people mainly,**

- Out patient services
- Comprehensive Oral Care
- Provision of essential drugs at affordable costs.
- Basic laboratory facilities.
- Referral services
- Specialist services on weekly basis
- Health education activities
- Observation of National and International health days
- Women empowerment
- Training of Undergraduate and Post graduate students

**Poor Patient Fund at JSS Hospital**

The Hospital has created Poor Patients fund to help the poor patients. Donations are collected from JSS Staff, allied institutions, general public and philanthropists. The fund is used to meet the treatment expenses of the poor patients. Apart from this the hospital also offers discounts/concessions in the treatment charges incurred to the deserving patients.

**Initiatives taken by the institution to align with the goal**

The Institution has included a subject Environmental Sciences in all courses as stipulated by UGC and organizes Environment Day and Water Day.

- The Institution believes in preserving traditional medicine and has established medicinal plants garden and promotes its use by display of medicinal plants in exhibition at Suttur Jatra.

## **17. CONSERVATION OF ECOSYSTEMS THROUGH SUSTAINABLE USE OF EXPERIMENTAL ANIMALS AND INHOUSE BREEDING SUPPORTING LIFE ON LAND**

**Conservation of Ecosystems through sustainable use of experimental animals and inhouse breeding**  
Animal facility plant built in compliance with guidelines of National Institutes of Health (NIH), USA and CPCSEA, Govt of India.

### **Centre For Experimental Pharmacology and Toxicology**

JSS Academy of Higher Education & Research (JSS AHER) has endowed an extensive ABSL2 preclinical facility "Centre for Experimental Pharmacology and Toxicology" to support the comprehensive research activities of its constituent colleges (medical, dental, pharmacy, life sciences) and departments. The facility is licensed (261/PO/ReBi/S/2000/CPCSEA) by Committee for the Purpose of Control and Supervision of Experiments on Animals (CPCSEA), Govt of India, to conduct experiment on small animal models and breeding for in-house use. The vivarium is in a serene and peaceful ambiance within the University campus. A built space of 7000 sq ft primarily constitutes rodent barrier facility, small animal clinico-pathology labs and supportive suites. Animal facility plant is built in compliance with guidelines of National Institutes of Health (NIH), USA and CPCSEA, Govt of India.

### **Physical Plant**

- PT is a BSL-II barrier facility with dual corridors, temperature, humidity, light, noise and differential air pressure monitored 24X7
- Epoxy terrazzo coated floor, concrete masonry walls, and moisture resistant ceilings
- Facility is provisioned with Isolated ventilated cages
- Clinicopathology, test item control office, archive on site

### **Animal care is monitored daily including weekends and holidays**

- Health monitoring within the animal facilities is ensured through a sentinel program, supplier reports, and environmental testing by trained veterinarians
- Sterilised Bedding, food, and portable mineral water
- Consistent healthcare from study initiation to study completion
- Practice in force on humane endpoints policy to minimize pain and discomfort

### **Experience with and equipped to conduct studies in a wide array of species**

- Rat
- Mouse
- Rabbit
- Guinea Pig

### **Collaborations**

#### **Internationals**

- NIAAA, NIH, USA
- Macquarie University, Australia
- Sultan Qaboos University, Oman
- University of Saskatchewan, Canada
- Seton Hall University, USA
- University of Johannesburg

#### **National**

- CSIR - Central Food Technological Research Institute, Mysuru
- CSIR-IITR Lucknow
- IIT, Madras
- Department of Chemistry, University of Delhi
- National Institute of Mental Health and Neurosciences (NIMHANS), Bangalore
- Birla Institute of Technology and Science, Hyderabad
- Annamalai University, Tamil Nadu



Biochemistry Lab



PPE Change Rooms



Air Shower Entry



Entrance to Clean Corrido



Clean Corridors



Rodent Room



Cages Autoclave



Service corridor



Stereotaxic Apparatus



IVC Cage

## 18. BIODIVERSITY CONSERVATION SEMINARS, WORKSHOP, MEETINGS

Virtual lecture workshop on “Biodiversity Conservation: Issues and Challenges” was held at JSS Academy of Higher Education & Research (JSS AHER). The workshop was jointly sponsored by the three prestigious Science Academies. The workshop was organized by the Department of Environmental Science, Faculty of Natural Sciences, JSS AHER.



The workshop was inaugurated by Dr. Surinder Singh, Vice – Chancellor, JSS AHER. In his inaugural address he highlighted the importance of biodiversity conservation, and he thanked the Science Academies’ for conducting the workshop at JSS AHER. Lectures were delivered on 15<sup>th</sup> and 16<sup>th</sup> July 2021 by the resource persons after the inaugural function. Dr. M. Sanjappa, Former Director, Botanical Survey of India, CSIR Emeritus Scientist, INSA Senior Scientist, University of Agricultural Sciences, GKVK in his lecture highlighted the effort made during British India related plant diversity documentation. He discussed the importance and role of Botanical Survey of India with respect to survey, documentation, and conservation of plant diversity. Dr. KR. Shivanna, Formerly Professor and Head, Department of Botany, University of Delhi, INSA Honorary Scientist, ATREE, Bengaluru, spoke about Sixth mass extinction crisis and its impact on biodiversity and human welfare. He also gave detailed account on ultimate causes for species vulnerability, global strategy for plant conservation. Dr. Ramakrishna, Former Director, Zoological Survey of India, presented a detailed account on the concept of biodiversity, its levels, threats, continental drift & plate tectonics. He also briefed the success stories of conservation programs in India. He ended his talk by expressing his concern about biodiversity loss with special reference to climate change. Prof. R. Uma Shaanker, Formerly Professor, Department of Crop Physiology, University of Agricultural Sciences, G.K.V.K, threw light on discoveries of new animal species, temporal species distribution with reference to endemic and non – endemic species. He stressed the need for a deeper understanding the mechanics of biodiversity for sustainable solutions. 150 participants representing students, research scholars and faculties attended the event.

## Celebration of World Environmental Day by the Department

Dept. of Environmental Science – Faculty of Natural Sciences, JSS Academy of Higher Education & Research (JSS AHER), Mysuru, conducted one-day webinar to mark the occasion of World Environment Day, 2021 on the theme “Restoration of Ecosystem” through Zoom platform.



Dr. Balasubramanian, Director (Research) & Dean, Faculty of Life Sciences, JSS AHER, in his opening address motivated the participants to use traditional knowledge along with scientific touch to solve environmental problems. Dr. Raveesha KA., Head & Prof., Faculty of Life Sciences, JSS AHER, in his special address explained the history and significance of World Environment Day celebrations. Four speakers from academic, research and administrative background shared their experiences related to the theme.

Mrs. Anusha P., Assistant Conservator of Forest, Mysore, briefed the importance of ecosystem restoration and ecosystem services. Mr. K. Srinivasan., Project Coordinator - Western Ghats, Nature Conservation Foundation, explained about ecological restoration of degraded rainforest in Anamalai Hills, Western Ghats. He concluded his speech by highlighting the challenges faced by his team to convince the locals towards restoration process. Dr. Gururaja KV, Faculty and researcher, Srishti Manipal Institute of Art, Design and Technology, Yalahanka Bengaluru, highlighted the role of amphibians in maintaining ecosystem equilibrium. In the question-and-answer session, he mentioned that how amphibians play a role as bioindicators to assess the environmental quality. The talk was delivered by Amarakshar V M, Assistant Conservator of Forests from Karnataka Forest Department on “Role of the forest department in Eco-Restoration” in which he emphasized on the activities of forest dept. in ecosystem improvements. He also stressed upon the critical importance of the ecosystems and their restoration for the preservation of our planet.

Around 210 participants including faculty, scholars, students and public attended the webinar and interacted with speakers.

## **19. RESEARCH PROJECTS SUPPOTING SDG 15:**

<https://jssuni.edu.in/jssaher/research/research-project-search.html>

Analysis of depression, anxiety, stress & healthy eating behavior (DASHe) during Covid-19 pandemic

**Principal Investigator:** Dr Sudha Sairam **Duration:** 1 Year(s)

**Institute:** School of Life Sciences - Mysuru **Department:** Nutrition & Dietetics

Elucidating low nutrient stress response in parthenium

**Principal Investigator:** Dr Charukesi R **Duration:** 2 Year(s)

**Institute:** School of Life Sciences - Mysuru **Department:** Biotechnology & Bioinformatics

Establishment of plant tissue culture facility for the in vitro regeneration of Banana Cv Nanjanagudu Rasabale

**Principal Investigator:** Dr Mohan T C **Duration:** 2 Year(s)

**Institute:** School of Life Sciences - Mysuru **Department:** Biotechnology & Bioinformatics

SIG on Biofilms in Clinical Settings and their Control

**Principal Investigator:** Dr Jamuna Bai A **Duration:** 3 Year(s)

**Institute:** School of Life Sciences - Mysuru **Department:** Microbiology & Tissue Culture

Early Detection of the Extra Pulmonary Tuberculosis with Specific Gene Identification Process

**Principal Investigator:** Dr Sumana K **Duration:** 4 Year(s)

**Institute:** School of Life Sciences - Mysuru **Department:** Microbiology & Tissue Culture

Heterostructured nanocomposite particles for wastewater treatment; an environmental remediation tool

**Principal Investigator:** Dr Shankamma K **Duration:** 1 Year(s) 11 Month(s)

**Institute:** School of Life Sciences - Mysuru **Department:** Nanoscience & Technology

Inorganic/inorganic nano-interfaces for sustainable Environmental Remediation

**Principal Investigator:** Dr Anil Kumar K M **Duration:** 1 Year(s)

**Institute:** School of Life Sciences - Mysuru **Department:** Environmental Sciences

Development of a Device for the Detection of the Mycobacterium tuberculosis, casual agent of Extra Pulmonary Tuberculosis

**Principal Investigator:** Dr Sumana K **Duration:** 2 Year(s)

**Institute:** School of Life Sciences - Mysuru **Department:** Microbiology & Tissue Culture

Beneficial effects of banana (Musa sp. Var. Nanjangud rasa bale) flower and pseudostem on pain and functional dearth associated with diabetic neuropat

**Principal Investigator:** Dr Ramith Ramu **Duration:** 2 Year(s)

**Institute:** School of Life Sciences - Mysuru **Department:** Biotechnology & Bioinformatics

Repurposing of the drugs targeting the oncogenes of MAPK pathway of lung cancer by in silico and invitro analysis

**Principal Investigator:** Dr Ashwini P **Duration:** 1 Year(s)

**Institute:** School of Life Sciences - Mysuru **Department:** Microbiology & Tissue Culture

Evaluation of anti- mucosal inflammatory effect of Acacia fernesiana using Zebra fish as model organism

**Principal Investigator:** Dr Chandan S **Duration:** 1 Year(s)

**Institute:** School of Life Sciences - Mysuru **Department:** Biotechnology & Bioinformatics

A prospective study of synergistic effect of combination therapy of FDA approved drugs and in silico characterization against Alzheimers disease

**Principal Investigator:** Dr Chandan S **Duration:** 2 Year(s)

**Institute:** School of Life Sciences - Mysuru **Department:** Biotechnology & Bioinformatics

Mycorrhizal influence on the growth and bioactive compounds composition of Ocimum sanctum and Plectranthus amboinicus

**Principal Investigator:** Dr Nagalambika Prasad **Duration:** 1 Year(s)

**Institute:** School of Life Sciences - Mysuru **Department:** Microbiology & Tissue Culture  
**Medical and Life Sciences Research Fund Bursary award**

**Principal Investigator:** Dr Mohan T C **Duration:** 2 Year(s)

**Institute:** School of Life Sciences - Mysuru **Department:** Biotechnology & Bioinformatics  
**Establishment of plant tissue culture facility for in vitro regeneration of Banana Cv Nanjanagudu Rasabale**

**Principal Investigator:** Dr Mohan T C **Duration:** 2 Year(s)

**Institute:** School of Life Sciences - Mysuru **Department:** Biotechnology & Bioinformatics  
**Proteomic analysis of rice roots exposed to arsenate to identify the novel regulators of arsenic stress response**

**Principal Investigator:** Dr Mohan T C **Duration:** 2 Year(s)

**Institute:** School of Life Sciences - Mysuru **Department:** Biotechnology & Bioinformatics  
**The intervention of Phytohormones to reduce arsenic accumulation in Rice grains**

**Principal Investigator:** Dr Mohan T C **Duration:** 2 Year(s)

**Institute:** School of Life Sciences - Mysuru **Department:** Biotechnology & Bioinformatics  
**Placental microbiome and factors affecting it**

**Principal Investigator:** Dr Archer Ann Catherine **Duration:** 3 Year(s)

**Institute:** School of Life Sciences - Mysuru **Department:** Microbiology & Tissue Culture  
**Bacteriocin coated nanoparticles and bacteriophages as strategies for combatting antibiotic and multidrug resistance from sewage and clinical samples**

**Principal Investigator:** Dr Archer Ann Catherine **Duration:** 1 Year(s)

**Institute:** School of Life Sciences - Mysuru **Department:** Microbiology & Tissue Culture  
**STUDY OF RARE DISEASE POPULATION FROM MYSORE DISTRICT TO ESTABLISH BASELINE CYTOGENETIC DATA & ANALYSIS**

**Principal Investigator:** Dr Raghu N **Duration:** 1 Year(s)

**Institute:** School of Life Sciences - Mysuru **Department:** Molecular Biology  
**VACCINE-ADJUVANT CO-DELIVERY WITH FOOD ALLERGEN VIA INTESTINAL MUCOSA AS A NOVEL ALLERGEN-SPECIFIC IMMUNOTHERAPY APPROACH TO FOOD ALLERGY**

**Principal Investigator:** DR KIRAN KUMAR M N **Duration:** 3 Year(s)

**Institute:** Faculty of Life Sciences [FLS] **Department:** Biotechnology [BIOTECH]  
**Filamenting temperature sensitive mutant Z (Fts-Z) a novel target for anti-bacterial action of selected phytochemicals: - potential treatment for drug**

**Principal Investigator:** Dr Kanthesh M Basalingappa **Duration:** 1 Year(s) 1 Month(s)

**Institute:** Faculty of Life Sciences [FLS] **Department:** Molecular Biology [MOLBIO]  
**Evaluation of Neuroprotective effect of Boswellic acid in Drosophilla Model of Parkinsons Disease**

**Principal Investigator:** Chandan D **Duration:** 1 Year(s)

**Institute:** Faculty of Life Sciences JSSU **Department:** Division of Biochemistry  
**Characterization of immunomodulatory molecules targeting p38 MAPKcPLA2 pathway from Sanadhika plant in Experimental Autoimmune Encephalomyelitis Model**

**Principal Investigator:** Kavitha Raj V **Duration:** 3 Year(s)

**Institute:** Faculty of Life sciences JSSU **Department:** Division of Biochemistry  
**Antisnake Venom Animal Study Project**

**Principal Investigator:** Dr J R Kumar **Duration:** 1 Year(s)

**Institute:** Faculty of Life Sciences [FLS] **Department:** Biochemistry-General [BICHEM]  
**Exploring the effect of Bioactive Molecule(s) from BoerhaaviaDiffusa (Sanadika) on Myelin Regeneration and Immunomodulation in Inflammatory Demyelin**

**Principal Investigator:** Dr J R Kumar **Duration:** 3 Year(s)

**Institute:** Faculty of Life Sciences [FLS] **Department:** Biochemistry-General [BICHEM]

Systematic studies on the Anti-inflammatory Immunomodulatory and Remyelinating effect of Lutein and Zeaxanthin in Experimental autoimmune encephalomyelitis

**Principal Investigator:** Dr J R Kumar **Duration:** 3 Year(s)

**Institute:** Faculty of Life Sciences [FLS] **Department:** Biochemistry-General [BICHEM]

Microbial Risk Assessment With special Reference To Gastroenteritis And Its Implications of Risk Management In Urban Water Systems Of Mysore, Karnataka

**Principal Investigator:** Dr Suriyanarayanan S **Duration:** 3 Year(s)

**Institute:** Faculty of Life Sciences [FLS] **Department:** Environmental Sciences [ENVSCI]

Study of Alpha and Beta Radioactivity in Karnataka Drinking water with GIS mapping

**Principal Investigator:** Dr Suriyanarayanan S **Duration:** 3 Year(s)

**Institute:** Faculty of Life Sciences [FLS] **Department:** Environmental Sciences [ENVSCI]

Targeting TSPO with ligands to check their efficacy on mitochondrial cholesterol uptake

**Principal Investigator:** Dr Raghu Ram Achar **Duration:** 2 Year(s)

**Institute:** Faculty of Life Sciences [FLS] **Department:** Biochemistry-General [BICHEM]

Geospatial analysis to identify regional disparities in the SC/ST dominated forest fringe villages of Mysore and Chamarajanagar District, Karnataka

**Principal Investigator:** Mr Ravi Kumar M **Duration:** 2 Year(s)

**Institute:** Faculty of Life Sciences [FLS] **Department:** Geoinformatics [GEOINFO]

Degenerative effects of organophosphate pesticides on the formation of an inner plexiform layer during retinal development and protective roles of glutathione

**Principal Investigator:** Dr Gopenath T.S **Duration:** 3 Year(s)

**Institute:** School of Life Sciences - Mysuru **Department:** Biotechnology & Bioinformatics

Herbal remedies for the treatment of Hemorrhagic diseases by Platelet Enhancing activity

**Principal Investigator:** Dr K Mruthunjaya **Duration:** 3 Year(s)

**Institute:** JSS College of Pharmacy, Mysore **Department:** Pharmacognosy

Exploring the Herbal remedy for specific haemorrhagic disease through platelet enhancing activity

**Principal Investigator:** Dr K Mruthunjaya **Duration:** 3 Year(s)

**Institute:** JSS College of Pharmacy, Mysore **Department:** Pharmacognosy

Exploring the Herbal remedy for specific haemorrhagic disease through platelet enhancing activity

**Principal Investigator:** Dr K Mruthunjaya **Duration:** 3 Year(s)

**Institute:** JSS College of Pharmacy, Mysore **Department:** Pharmacognosy

Ongoing Project - Development of herbal concoction against kidney stone using novel combination of natural constituents

**Principal Investigator:** Mr Ramu.G. **Duration:** 2 Year(s)

**Institute:** JSS College of Pharmacy, Ooty **Department:** Pharmacognosy

The Mechanism of action of certain Ayurvedic Medicinal Plants on Alzheimers by dipeptidyl peptidase-4 inhibition using herbs

**Principal Investigator:** Dr Duraiswamy Basavan **Duration:** 3 Year(s) 11 Month(s)

**Institute:** JSS College of Pharmacy, Ooty [JSSCPO] **Department:** Pharmacognosy [PCOG]

A study on phytochemical and chemico-biological interactions of bioactive principles from Trichodesma indicum in the management of experimental autoimmune disease

**Principal Investigator:** Hamsalakshmi **Duration:** 3 Year(s) 7 Month(s)

**Institute:** JSS College of Pharmacy, Mysuru **Department:** Pharmacognosy

Anti snake Venom Animal Study Project

**Principal Investigator:** Dr J R Kumar **Duration:** 1 Year(s)

**Institute:** Faculty of Life Sciences [FLS] **Department:** Biochemistry-General [BICHEM]

## PUBLICATIONS SUPPORTING SDG 15

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### Detailed Understanding of Different Extraction Methods for the Research on Medicinal Plants

**First Author:** Dr Sushma R [Journal Article] [Year: 2021]

**Journal:** Indian Journal of Oral Health and Research **Factor:** 0 **Volume #:** 7 **Issue #:** 1 **Page #:** 14 - 20

**Publisher:** Medknow

### A review on genotoxic profiles of herbal plants with hepatoprotective activity

**First Author:** Mr Narasimhamurthy M [Journal Article] [Year: 2021]

**Journal:** Complex Systems and Complexity Science **Factor:** 0.082 **Volume #:** 4 **Issue #:** 8 **Page #:** 1 - 17

**Publisher:** Elsevier

### Role of medicinal plants in the treatment of eumycetoma: A review

**First Author:** Shashank M Patil [Journal Article] [Year: 2021]

**Journal:** Journal of Applied Biology & Biotechnology **Factor:** 0.2 **Volume #:** 09 **Issue #:** 05 **Page #:** 176 - 185

**Publisher:** Open Science Publishers LLP



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### Aromatic Profile Variation of Essential Oil from Dried Makwaen Fruit and Related Species

**First Author:** Trid Sriwichai [Journal Article] [Year: 2021]

**Journal:** AoB PLANTS **Factor:** 1.431 **Volume #:** 10 **Issue #:** 1 **Page #:** 803 - 803

**Publisher:** MDPI

### Fatty acids and its derivatives of Acorus calamus Linn. Rhizome induce stem cell-mediated cell division in plants and animals.

**First Author:** Chandran Rajesh [Journal Article] [Year: 2021]

**Journal:** Biocatalysis and Agricultural Biotechnology **Factor:** 1.444 **Volume #:** 36 **Issue #:** 01 **Page #:** 102153 -

**Publisher:** Elsevier

### Culturable diversity of bacterial endophytes associated with medicinal plants of the Western Ghats, India

**First Author:** Gordon Webster [Journal Article] [Year: 2020]

**Journal:** FEMS Microbiology Ecology **Factor:** 3.589 **Volume #:** 96 **Issue #:** 9 **Page #:** 1 - 15

**Publisher:** Oxford University Press

### Assessment of Microbial Load Reduction Efficiency of Sewage Treatment Plants (STPs) in Mysore, Karnataka, India

**First Author:** Severeni Ashili [Journal Article] [Year: 2019]

**Journal:** Water and Wastewater Treatment **Factor:** 0 **Volume #:** 8 **Issue #:** 9 **Page #:** 142 - 149

**Publisher:** Sciforschen

### AN OVERVIEW ON MEDICINAL PLANTS FOR THE TREATMENT OF ACNE

**First Author:** D. MANOGNA REDDY [Journal Article] [Year: 2019]

**Journal:** Journal of Critical Reviews **Factor:** 0 **Volume #:** 6 **Issue #:** 6 **Page #:** 7 - 14

**Publisher:** Journal of critical reviews

### Anti-cancer properties of *Annona muricata* (L.): A Review

**First Author:** Prasad Shashanka K. [Journal Article] [Year: 2019]

**Journal:** Medicinal Plants - International Journal of Phytomedicines and Related Industries **Factor:** 0.131 **Volume #:** 11 **Issue #:** 2 **Page #:** 123 - 134

**Publisher:** Indian journals.com

### Inhibitory effect on nitric oxide and protein denaturation of two traditional plants used in arthritis treatment

**First Author:** Mr Ramu.G. [Journal Article] [Year: 2018]

**Journal:** Pharmacologyonline **Factor:** 0.358 **Volume #:** 3 **Issue #:** 1 **Page #:** 145 - 149

**Publisher:** Online

### Taro *Colocasia esculenta* An overview

**First Author:** Dr Raghu N [Journal Article] [Year: 2018]

**Journal:** Journal of Medicinal Plants Studies **Factor:** 5.6 **Volume #:** 6 **Issue #:** 4 **Page #:** 144 - 154

**Publisher:** PLANT JOURNAL

### Medicinal Plants Diversity and their Folklore Uses by the Tribes of Nilgiri Hills, Tamil Nadu, India

**First Author:** R logesh [Journal Article] [Year: 2017]

**Journal:** International Journal of Pharmacognosy and Chinese Medicine **Factor:** 0 **Volume #:** 1 **Issue #:** 3 **Page #:** 8 - 20

**Publisher:** medwin publishers

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## Natural Medicines Enhancing Neurite Growth in Central Nervous System Disorders: A Review

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MODE=SSMD&PID=10003&MID=12002&SMID=0&CID=0&DID=0&PAGESEARCHFORWHATID=19596

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## Culturable diversity of bacterial endophytes associated with medicinal plants of the Western Ghats, India

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## Anti-cancer properties of *Annona muricata* (L.): A Review

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### Publications supporting SDG 15

- Assessment of different types of malocclusion using IOTN Index and Geographic Information System- A cross-sectional observational study  
**First Author:** Dr Bhagyalakshmi A [Journal Article] [ **Year:** 2020]
- Impact of COVID 19 on Global Economy- A study on Econometrics Model using R software  
**First Author:** Dr Mamatha H.K [Journal Article] [ **Year:** 2020]
- Treatments and Prophylactics for a Global Emergency Alert: COVID 19 using Allopathic and Indian Phytomedicine  
**First Author:** AravindV [Journal Article] [ **Year:** 2020]
- The novel coronavirus and its possible treatment by vaccines, therapeutics and drug delivery systems: Current status and future perspectives  
**First Author:** Madhurya [Journal Article] [ **Year:** 2020]
- Malaria incidences prognosis using climatic factors in Mysore, India: A time series approach  
**First Author:** Mrs Stavelin Abhinandithe K [Journal Article] [ **Year:** 2020]

- NUTRITIONAL SIGNIFICANCE OF INDIAN BORAGE (PLECTRANTHUS AMBOINICUS) : A REVIEW  
**First Author:** Dr Nagalambika Prasad [Journal Article] [ **Year:** 2020]
- **Journal:** Plant Archives **Factor:** 0.062 **Volume #:** 20 **Issue #:** 2 **Page #:** 3727 - 3730
- Medicinal values and pharmacological activities of vitexnigundo Linn.  
**First Author:** Vinutha T [Journal Article] [ **Year:** 2020]
- **Journal:** Journal of Global Trends in Pharmaceutical Sciences **Factor:** 0.18 **Volume #:** 11 **Issue #:** 1 **Page #:** 7412 - 7415
- Laron Syndrome A Disorder Associated with a Reduced Risk of Cancer: A Review on the Molecular Aspects  
**First Author:** Dr Raghu N [Journal Article] [ **Year:** 2020]
- **Journal:** International Journal of Innovative Medicine and Health Science **Factor:** 2 **Volume #:** 12 **Issue #:** 2 **Page #:** 123 - 132
- C-PHYCOCYANIN OF SPIRULINA PLANTESIS INHIBITS NSP12 REQUIRED FOR REPLICATION OF SARS-COV-2: A NOVEL FINDING IN-SILICO  
**First Author:** Kiran Raj T [Journal Article] [ **Year:** 2020]
- **Journal:** International Journal of Pharmaceutical Sciences and Research **Factor:** 2.6 **Volume #:** 11 **Issue #:** 9 **Page #:** 1000 - 1009
- Cholinergic control of bone development and beyond  
**First Author:** Janine Spieker [Journal Article] [ **Year:** 2020]
- **Journal:** International Immunopharmacology **Factor:** 2.654 **Volume #:** 83 **Issue #:** 2
- A Review on Significance of Carica Papaya LINN: A Promising Medicinal Plant  
**First Author:** Nandini G [Journal Article] [ **Year:** 2020]
- **Journal:** International journal of recent Scientific Research **Factor:** 5.971 **Volume #:** 11 **Issue #:** 02 **Page #:** 37602 - 37607
- A Review on significant of Carica papaya Linn: A promising Medicinal plant.  
**First Author:** Nandini G [Journal Article] [ **Year:** 2020]
- **Journal:** International journal of recent Scientific Research **Factor:** 5.971 **Volume #:** 11 **Issue #:** 02 **Page #:** 37602 - 37607
- Guduchi Its Medicinal Properties  
**First Author:** Dr Raghu N [Journal Article] [ **Year:** 2019]
- Cell signaling in yeast A mini review  
**First Author:** SHIPINGANA [Journal Article] [ **Year:** 2019]
- **Journal:** Journal of Biomedical Sciences **Factor:** 1.9 **Volume #:** 5 **Issue #:** 2 **Page #:** 1000 - 1009

- IPL Sublamination in Chicken Retinal Spheroids Is Initiated via Muller Cells and Cholinergic Differentiation and Is Disrupted by NMDA Signaling  
**First Author:** Dr Gopenath T.S [Journal Article] [ **Year:** 2019]
- **Journal:** Investigative Ophthalmology and Visual Science **Factor:** 3.452 **Volume**
- Multivariate response surface methodology assisted modified QuEChERS extraction method for the evaluation of organophosphate pesticides in fruits and  
**First Author:** Narendaran ST [Journal Article] [ **Year:** 2019]
- S. T. Narendaran Veera Venkata Satyanarayana Reddy Karri  
Experimental design in pesticide extraction methods: A Review Food Chemistry, Volume: 289
- Myocarditis Complicating Viper Snake Bite in a Child .  
**First Author:** Dr Jagadish Kumar K [Journal Article] [ **Year:** 2017]
- Biochemical and pharmacological characterization of three toxic phospholipase A2s from Daboia russelii snake venom  
**First Author:** Dr J R Kumar [Journal Article] [
- Purification and biochemical characterization of l-amino acid oxidase from western region indian cobra (naja naja) veno  
**First Author:** Neema K N [Journal Article] [ **Year:** 2015]
- **Journal:** International Journal of Pharmacy and Pharmaceutical Sciences **Factor:** 0.609 **Volume** #: 7 **Issue #:** 1 **Page #:** 167 - 171
- Biochemical and pharmacological characterization of three toxic phospholipase A2s from Daboia russelii snake venom  
**First Author:** Dr J R Kumar [Journal Article] [ **Year:** 2015]
- **Journal:** Comparative Biochemistry and Physiology, Part C **Factor:** 2.536 **Volume**
- Isolation and characterization of Reprotoxin a novel protein complex from Daboia russelii snake venom  
**First Author:** Dr J R Kumar [Journal Article] [ **Year:** 2008]
- **Journal:** Biochimie **Factor:** 3.019 **Volume #:** 10 **Issue #:** 90 **Page #:** 1545 - 1559  
**First Author:** Dr Shivaraju H P [Journal Article] [ **Year:** 2020]
- A Study on Traditional Knowledge and Medicinal Applications of the Endemic Herbal Species in the Western Ghats of Shimoga Region, Karnataka, India,

**First Author:** Dr Anil Kumar K M [Journal Article]

- Medicinal plants of the Western Ghats as possible inhibitors of oxidation in various biological lipid

**First Author:** Ms Namratha PK, Research Scholar, DOS in Food Science & Nutrition, University of Mysore. [Journal Article] [ **Year:** 2016]

- Review of pesticide residue analysis in fruits and vegetables. Pre-treatment, extraction and detection techniques

**First Author:** S.T.Narendran [Journal Article] [ **Year:** 2020]

- Bio-Analytical Method Development and Validation of Dichlorvos Pesticide by RP-UFLC Method

**First Author:** Dr Chandan R S [Journal Article] [ **Year:** 2020]

- Analytical and Bio-Analytical Method Development and Validation of Dichlorvos Pesticide Using RP-HPLC Method

**First Author:** Dr Chandan R S [Journal Article] [ **Year:** 2020]

- Culturable diversity of bacterial endophytes associated with medicinal plants of the Western Ghats, India

**First Author:** Gordon Webster [Journal Article] [ **Year:** 2020]

- Isolation and characterization of p-Coumaric acid from Diospyros melanoxylon medicinal plant endemic to Western Ghats, India

- Supriya Bevinakoppamath., Dr Shobha C.R., Dr Akila Prashant, An insight into the use of transgenic animal models for conducting research on coronavirus, Jun.2020, International Journal of Health and Allied Sciences, Vol.9, Issue.5, P-18-23, ISSN-2278-4292 (NATIONAL). (Related SDG: 03, 09)

- Pierre Bedossa., Jonathon Marioneaux., Madhavi Bhat., Cristina Alonso., Srinivas V Koduru., Binu Philip., Mukul R Jain., Suresh R Giri., Rebecca Caffrey., Dr. Divya P. Kumar., Dr. Prasanna K. Santhekadur., Arun J Sanyal, The PPAR  $\alpha/\gamma$  Agonist Saroglitazar Improves Insulin Resistance and Steatohepatitis in a Diet Induced Animal Model of Nonalcoholic Fatty Liver Disease, Jun.2020, Scientific Reports, Vol.10, Issue.1, P-1-14, ISSN-2045-2322 (INTERNATIONAL). (Related SDG: 03, 09)

- Dinesh Sosalagere Manjegowda., Priya Babu Shubha., Sharanappa Puttappa., Shivananju Nanjunda Swamy., Dr Raghu Ram Achar., Maheshwari Mahadevappa., Venkatesh Bommalapura Kulkarni, Hemostatically potent small molecular weight serine protease from *Maclura spinosa* (Roxb. ex Willd.) accelerates healing of subcutaneous dermal wounds in Swiss albino mice, Aug.2020, Biologia (Poland), Vol.75, Issue.1, P-139-149, ISSN-0006-3088 (INTERNATIONAL). (Related SDG: 03, 09)

- Siva G Somasundaram, Cecil E Kirkland, Elizaveta V Mikhaylenko, Sergey V Dindyaev, Narasimha M Beeraka, Denis V Kasatkin, Gjumrakch Aliev, The Role of Neurogenic Bioamines in Nerve Fibers of Uterus during the Postpartum Involution in Experimental Animal Models, 2021, Current Pharmaceutical Design, ISSN: 1381-6128 (INTERNATIONAL).

<https://jssuni.edu.in/jssaher/research/research-publication-search.html>

## JSSAHER'S ACTION ON FOREST CONSERVATION IN PRESERVING TEAK TREES .

### **Teak Tree Forest with in JSSAHER Campus - Home for thousands of species**

The teak forests are under pressure because of the high value of teak timber. The teak tree forests are also suffering from overexploitation and conversion to agricultural land. JSSAHER protects and preserves the teak forests remain at its Campus in Mysore as a part of its conservation strategy. This Teak Tree Forest is a home for thousands of living species helping the life on land.

