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## Editor's note.....

**Dear Readers!**

We are delighted to bring you the last quarter's newsletter for the year 2022. We are really encouraged by the participation of our researchers by providing articles of subjects of their interest that are more relevant to several post-Covid pandemic affairs. We are engaged in multidisciplinary studies and it is possible to contribute more to the future issues by presenting your ideas and photographs, forthcoming events, book reviews and similar news feeds which may be useful to update our knowledge and views.

We wish to mention that your constructive criticism and contributions are very much helpful to bring the Newsletter on time and improve the contents. Hope all of you will join hands and help our young researchers to spread their wings and find new horizons.

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**Photo by:** Viral Vadodariya

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**Cover photos by:** Dayesh M. Parmar



Photo by: Viral Vadodariya

## 1. Rare occurrence of the snail *Bakawan rotundata* (A. Adams, 1850) (Cephalaspidea: Haminoeidae) in the Kandla mangroves, Gulf of Kachchh, Gujarat, India

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Members of the family Haminoeidae, commonly known as bubble snails, in which the shell is fragile, external and transparent, so it looks like a bubble. Species in this family are found worldwide in both tropical and temperate waters. Their shells show significant variability ranging from typical bulloid to cylindrical-elongate. Spiral grooves can be present at the ends or cover the entire shell. Shells are usually thin, translucent, and fragile. Haminoeids feed on green algae that grow on mud flats and often have a coloured shell, which is very fragile while those sandy bottom species are white in colour and thicker. The mantle and other body parts are usually dull and cryptically coloured. Many species are even capable of changing colour to suit the environment (Too et al., 2014). Color change with phenotypic plasticity and development is for camouflage against and enables animals to match their surroundings.



The gastropod *Bakawan rotundata* (A. Adams, 1850) is widely distributed in different parts of the Indo-west pacific regions like the Gulf of Oman, Pakistan, India (Gulf of Kutch, Gujarat), Singapore, Thailand, Philippines, Indonesia, Borneo, Malaysia, Macau and Liyu Island, China, Queensland and Australia (Oskars and Malaquias, 2020).

During the past three year survey in the different mangroves of Kachchh district, this species was rarely sighted and documented.

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Photo by: Prabhadevi, L



## 2. AN INSIGHT INTO THE IMPORTANCE OF THE CLIMBER *Mukia Maderaspatana* (L.) M. ROEM

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*Mukia maderaspatana* or *Cucumis maderaspatanus* is a perennial herb, climbing or trailing plant in the family Cucurbitaceae. The synonyms are *Bryonia scabrella*, *Melothria maderaspatana*. It is known by different names in India like कचरी kachari, मुसमुसा musmusa, परिपुष्करा paripushkara, पिण्डिला pindila, सेंद send, सेटु setu • Kachchhi: ચણચીભડજીવલ, Musumusukkai (Tamil). This climber is found growing in our campus after the monsoon showers with an attractive fruit, a miniature pumpkin, which turns deep red. Many of us are not known about its nutritive and medicinal values and never intended to protect and grow them. It is commonly found on the hedges and on the open areas, grazed by the livestock.

### Description

*Mukia maderaspatana* species grows in the wild ascending up to 1,800 mtr in the Hills. It grows commonly in village hedges and other open habitats and in the disturbed sites of the semi-evergreen and deciduous forests. It is distributed throughout the tropics and subtropics of the Old World, where different parts of the plant are being utilized for the health-care needs of human beings and livestock (Antoine Petrus, 2013). It is cultivated throughout the warmer regions of Uttar Pradesh, Bihar, West Bengal and Assam for its fruits. The plant requires humid and hot climate. Propagation is done by root or stem cuttings. Early planting is done during February-April and late planting from May to July. It is a dioecious climber with perennial root stock; slender stem, angled, hispid with forked tendrils. Leaves 7.5 \* 5 cm, ovate-oblong or cordate, acute, sinuate-dentate, rough on both surfaces.

### Chemical Constituents

*Mukia* plant leaf is typically low in calories, as it has low fat content but high in protein per calorie and dietary fiber. It is rich with Iron and Calcium, and phytochemicals such as vitamin C, carotenoids, lutein, folate as well as Vitamin K. It is rich in phenolics that



contribute to its medicinal properties. In the Siddha Medicine the leaves of this plant is used for curing the abdominal pain. Intake of the decoction will reduce Asthma and sneeze problems. The presence of the compounds such as tinosporidine and columbin and beta-sitosterol are responsible for the herb's adaptogenic, antispasmodic, anti-inflammatory, antipyretic, hypoglycemic, antioxidant, immuno-potentiating and hepato-protective properties. *Mukia maderaspatana* is a good diuretic, stomachic, antipyretic, antifatulent, antiasthmatic and antibronchitis besides its use in vertigo and biliousness. It is used in Ayurveda for various therapeutic purposes such as relief of toothache or flatulence, and as an expectorant and a sudorific. Certain traditional medical practitioners also use the leaf-tea of this plant for alleviation of jaundice. The leaf-tea consumption brings blood pressure to near normalcy, strengthens blood lipid profile, and showed beneficial effects on fibrinogen and bilirubin levels in patients with hypertension, which provide a pharmacologic basis for the traditional use of this plant. This plant extracts are found effective in the treatment for cutaneous warts found in the udder, teats, neck, eyelids, shoulder, inner ear, and lower line of the abdomen caused by Bovine Papilloma Virus in cattle (Raja and Jagadeeswaran, 2021) causes severe impact on their values (Campo et al., 1994).

The leaves and tender shoots are also frequently consumed as a part of the South Indian cuisine. This plant is very popular in Tamilnadu, where it is used to give taste for dosa, Rice, rasam and chatni. This plant is reported to be a commonly used ethnomedicinal plant for over 2000 years by Kani tribe healers, the oldest South Indian ethnic community (Raja and Jagadeeswaran 2021). Many secondary metabolites of this species are commercially important and find use in a number of pharmaceutical compounds. However, a sustained supply of the source material often becomes difficult due to the factors like environmental changes, cultural practices, diverse geographical distribution, labour cost, selection of the superior plant stock and over exploitation by pharmaceutical industry (Joy et al., 1998). Let us preserve this herb and use occasionally and derive natural and sustained remedies and boost our immunity with the large amount of vitamin C in it.





Photo by: Prabhadevi, L

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### 3. Threats to Pollinators - A vision for creating connections

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Human population growth and industrial development have led to increased and unsustainable consumption of natural resources. The resulting interrelated environmental pressures threaten global biodiversity and jeopardize the provision of crucial ecosystem services. Insect pollination is a high-profile example. Social and solitary bees, wasps, flies, beetles, butterflies, and moths comprise the vast majority of the world's pollinators.

You may not notice humming birds, sunbirds, bats, bees, beetles, butterflies, and flies carrying pollen from one plant to another as they collect nectar. These animals help pollinate more than 75% of the world's flowering plants, and nearly 75% of our crops. Without these pollinators there would have fewer nutritious berries and seeds to eat, and we would miss out on many fruits, vegetables, and nuts, like blueberries, squash and almonds not mention chocolate and coffee all of which depend on pollinators.

Most bees and some birds, bats, and many insects, play a crucial role in the reproduction of flowering plants and on the production of most fruits and vegetables. The fruits and seeds of flowering plants are an important food source for people and wildlife. Seeds that are not eaten will eventually produce new plants, helping to maintain the plant population.

Thus arises – what is pollination? Pollination results when the pollen from the male part of the flower (stamen) is moved to the female part of the same or another flower (stigma) to have fertilization and for the production of fruits and seeds. However, some flowers rely on the wind to move pollen, while others rely on animals. Animals visit flowers in search of food and sometimes even mates, shelter and nest-building materials. Some animals, such as butterflies and birds, move pollen incidentally because the pollen sticks on their body while they are collecting nectar from the flowers. All of these animals are considered as pollinators.



Altogether, 5-8% of global agricultural production is directly dependent on animal pollinators, the equivalent of 235-577 billion USD worth of annual food generation. Furthermore, over three-quarters of dominant global food crops are at least in part reliant on pollination by insects or other animals. The main threats to pollinators are caused by human activities such as the growing levels of pesticides used in agriculture, pollution and invasive species, but also biodiversity loss due to large fields of monocultures and fewer wild flowers, as well as the effects of climate change. Already 16.5% of pollinators are threatened with extinction globally, and over 40% of pollinator species are facing extinction. The decline in numbers of pollinators would in turn lead to lower crop yields and higher prices for consumers.

Animal pollination is essential for the reproduction of many plant species and its global value for agriculture has been estimated at \$235-577 billion US dollars. However, declines have been reported for many pollinator groups, including bees, hoverflies and butterflies. Land use change has been identified as one of the key drivers of pollinator decline and urbanisation is a major driver of land cover change worldwide. Urban expansion is considered to be one of the main threats to global biodiversity. Over half of the world's population now lives in urban areas and this trend is expected to continue, with nearly 70% of the world's population living in urban areas by 2050. Urbanisation has been shown to negatively affect many taxa, including birds and plants. Negative effects of urbanisation on pollinators include lower visitation rates to flowers, lower species richness, loss of rare species and homogenisation of species pools. The insect groups such as hoverflies, wasps and beetles are negatively impacted by urbanisation. Urban areas are comprised of a complex mosaic of different land uses and ecological habitats. Broadly, urban green space falls into two main categories: (i) publicly accessible green space managed by local authorities (public parks and other amenity grassland including playing fields) and (2) privately owned green space (domestic or other private gardens). Other urban land uses include allotments (community gardens), cemeteries, churchyards, sacred groves, school grounds and university campuses, planters in built up areas, industrial estates and green roofs. Towns and cities also contain transport infrastructure that could provide habitat for pollinators, including road and railway verges and green space at airports. This means that the management of urban spaces



relies on multiple stakeholders with different responsibilities and motivations, which can present challenges for wildlife conservation. Potential threats to animal pollinators in urban areas including the impacts of pesticides and pollution, the effects of climate change and concerns over competition for resources between managed honey bees and wild pollinators. Adapting urban land management approaches and by ensuring that policymakers, practitioners, planning agencies, landscape architects and the urban residents have the evidence-based information they need to implement effective pollinator conservation policies and actions.



Photo by: Dr. V. Kannan

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#### 4. OUTDOOR AIR POLLUTION AND ITS CONTROL

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Most sources of outdoor air pollution are well beyond the control of individuals and demands concerted action by local, national and regional level policy-makers working in the sectors like transport, energy, waste management, urban planning, and agriculture. There are many examples of successful policies in transport, urban planning, power generation and industries that enable the reduction of air pollution which are detailed below.

- **Industrial sector:** Clean technologies that reduce industrial smokestack emissions; improved management of urban and agricultural waste, including capture of methane gas emitted from waste sites as an alternative to incineration (for use as biogas);
- **Energy:** Ensuring access to affordable clean household energy solutions for cooking, heating and lighting;
- **Transport:** Shifting to clean modes of power generation; prioritizing rapid urban transit, walking and cycling networks in cities as well as rail interurban freight and passenger travel; shifting to cleaner heavy-duty diesel vehicles and low-emission vehicles and fuels, including fuels with reduced sulphur content;
- **Urban planning:** Improving the energy efficiency of buildings and making cities more green and compact, and thus energy efficient;
- **Power generation:** Increased use of low-emission fuels and renewable combustion-free power sources (like solar, wind or hydropower); co-generation of heat and power; and distributed energy generation (e.g. mini-grids and rooftop solar power generation);
- **Municipal and agricultural waste management:** Strategies for waste reduction, waste separation, recycling and reuse or waste reprocessing; as well as improved methods of biological waste management such as anaerobic waste digestion to produce biogas, low cost alternatives to the open incineration of solid waste.



Where incineration is unavoidable, then combustion technologies with strict emission controls are critical.

All types of pollution have their kind of negative impact on our environment. The lives of humans and animals get impacted due to this. It is our responsibility to take various initiatives to protect nature. We need to fight against pollution and to take steps towards a better tomorrow.



Figure: (1) Industrial air Pollution, (2) measurement of Ambient air pollution (3) Stack Emission



Photo by: Viral Vadodariya

## 5. Earthquake (ધરતીકંપ) in the year 2001 in Kachchh district of Gujarat state

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This article is about the earthquake happened early morning at 8:45 am on 26<sup>th</sup> January 2001 (Friday), in Gujarat with a scale 7.7 Mw which has devastated and taken away the valuable lives and also in the collapse of a number of buildings including high-rise ones and those with reinforced concrete frames in Bhuj city. The earthquake originated at 23.6 north latitude and 69.8 east longitude, about 20 km northeast of Bhuj Town of the Kachchh district in western Gujarat. Even before this earthquake occurred in 1819, 1844, 1845, 1856, 1869, 1956 in the same location but this is highly disastrous. The earthquake smashed the lives of thousands of people, their belongings, leaving behind thousands who were seriously injured, bruised and handicapped; physically, psychologically and economically. The earthquake had impacted the total of 25 districts of the state including around 18 towns, 182 talukas and 7904 villages and there have seen large-scale devastation, within a radius of 300 km from the epicenter.



In the Kachchh district, four major urban areas – Bhuj, Anjar, Bhachau and Rapar suffered near total destruction.

The rural areas in the region are also very badly affected with over 450 villages almost totally destroyed. However, the issues in the recovery and reconstruction phase are: the proper understanding risk among different stakeholders, training and confidence building among the professionals and masons with appropriate development planning strategies. The earthquake has provided many policies such as geo-technical and structural failures. The traditional wisdom of design and construction practices of engineered buildings prevalent in this country came under criticism for the first time. It has triggered comprehensive understanding on what needs to be done in this regard. From this incident, policies were developed by the various stakeholders and also concentrated on improving the policy in general related to the distraction happened and the support extended by the World Bank and the Indian government especially Govt. of Gujarat is of immensely appreciable.



## 6. COVID-19 pandemic impact on the mental health of Academic staff and Students

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The incidence of the pandemic caused by the corona virus (COVID-19) and its variants during 2019 to 2021 have impacted every sector throughout the world and the educational sector in particular even though the number of children infected are very less. The students irrespective of their age are asked to remain at home because of the fear of the effects of the infection being transmitted through air and contact surfaces. The initial outbreak of COVID-19 in Wuhan had spread rapidly, affecting other parts of China and within a short span of time spread all over the world. The government in Wuhan took unprecedented steps and locked down the city on 23 January 2020. On January 30th 2020, the WHO declared COVID-19 a public health emergency of international concern. The first SARS-CoV-2 positive case in India was reported in the state of Kerala on 30th January 2020 and subsequently the number of cases drastically rose in other states and the government announced the complete lockdown in the high-risk states and later on implemented to all states. The government of India had decided to temporarily open the schools for a few grades, however, with the increase in the number of cases it was decided to close again. At this juncture many researchers have shared their idea on teaching and learning in different ways instead of the conventional method of face-to-face teaching as there was fear of losing 2020 academic year or even more years. The innovation of the online education and assessment strategies had been encouraged as much as possible wherever satellite communication networks are accessible. All the educational institutions started offering the courses through various education initiatives like online classrooms, radio programs and there were lots of students who didn't own the necessary gadgets and resources to attend the online classes suffered very much. E-learning tools have played a crucial role during this pandemic, helping schools and universities facilitate student learning during the closure of universities and schools (Subedi et al., 2020). The transition to online teaching was challenging to both teachers and students and policy-level intervention is required to improve this situation. Further, exploration and



investigation on effective pedagogy is very much needed and there is need for online teaching and learning tools for authentic assessments in such emergency periods.

Majority of the teachers had been using Blackboard, Chalk, books for classroom teaching in the schools and are not adapted to the new digital teaching may find difficulty in the delivery of lectures as well as to make sure about the level of understanding of the students as they observe them in the class. During COVID-19 pandemic in India 320 million students have been affected along with their families and teachers as well. This was very much evident in the remote villages where no proper electricity and communication facilities are available and having financial burdens. There exists a vast “digital inequality” in our society. One cannot assume that all students, as well as educators, would have access to internet connectivity and associated powerful devices to convey and attend the classes outside their institution (Shazia and Yadv 2020). Affordability is another factor to limit the access to e-Learning with students from economically weaker sections facing a greater burden. Additionally, the small children are forced to depend on educated youths in their learning process, internet access, use of digital devices and applications. When children need to use technology for their studies and access to devices or data is in short supply, boys often end up getting more access to these resources than girls (OECD, 2018).

Earlier researches with different study design to assess the psychological symptoms arising from pandemics/epidemics (Rubin, 2020; Brooks et al.,2020). Literature suggests that restrictive measures such as quarantine, isolation, and social distancing, have an impact on psychological wellbeing of people as well as emotive reactions to pandemic itself. The largest meta-analysis published to date on the prevalence of mental health concerns during the pandemic has shown that the anxiety prevalence among children and adolescents is as high as 19% and depression as high as 15% (Dragioti et al., 2021). It was found that more than 50% of children had experienced agitation and anxiety during the lockdown and 65% of youth aged 18-32 years felt lonely during the lockdown.

The sudden shift to adapt and implement online learning has led to heavy work load and stress among the teaching faculty. The educators need to re-imagine modes of curriculum planning, development of e-content, assessment, and reporting which may have been developed without proper planning and practice. Similarly, there are negative impacts of the internet access as there are platforms which may affect the character, and their





mental and physical health. Moreover, changes in everyday routine including lack of outdoor activity, disturbed sleeping patterns and social distancing have affected the mental well-being of the students. (Cao et al. 2020). The closure of schools and higher education institutions have affected the mental and physical health of children, students, parents and teachers worldwide especially in developing countries (UNESCO, 2020b). A recent study focusing on Chinese medical college students has noticed higher levels of anxiety associated with factors strongly related to Covid -19 related issues. Significant higher depression, anxiety and stress scores were observed in students with respect to university workers (Odrizola-González, et al., 2020). A large number of research reports on CoViD-19 outbreak have been reporting a substantial psychological impact of the various categories of the communities.

Moreover, Covid pandemic lock down had desiccated out the dreams as they were not able to complete their graduation. It took a longer time to familiarize themselves with the new system. In conclusion, the COVID-19 pandemic has been impacted the face-to-face education system and mental stress for the students. Therefore, the education system was changed to online teaching and digital learning infrastructures. This review represented the potential impact of the unusual situations prevailed during the COVID-19 pandemic outbreak on the educational system and mental health of students and academic staff in India.

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Photo by: Viral Vadodariya



## 7. A Report on International Biodiversity Day (22<sup>nd</sup> May 2022)

### Celebration at Gujarat Institute of Desert Ecology, Bhuj

International Biodiversity day is celebrated on 22<sup>nd</sup> May every year all around the world. Gujarat Institute of Desert Ecology has organized activities like Nature walk, Photography, and Slogan competition as well as a group discussion session within the campus. These events were planned by Mr. Viral Vadodariya and Mr. Karan Thakkar under the guidance of Dr. V. Vijay Kumar, Dr. K. Karthikeyan, Dr. Soumya Dasgupta and Dr. V. Kannan.

The nature walk was conducted at the crack of dawn from 6:00 to 7:30 am. Flora and Fauna teams were led by Dr. Jayesh Bhatt (Botanist) and Dr. V Kannan (Ornithologist) respectively. Dr. Soumya Dasgupta, Dr. Sanjay Babu, and Dr. K Karthikeyan shared their valuable knowledge with the research scholars of the institute. Mr. Mukesh koladiya, Mr. Viral Vadodariya, Ms. Monika Sharma, Ms. Krishna Gadhvi, Ms. Pallavi Joshi, Ms Bhagwati Kannad, Mr. Masud Badi, Mr. Supriyo Maity, and Mr. Karan Thakkar participated in the nature walk early in the morning and recorded 35 species of birds, two species of mammals, two species of reptiles and more than 50 species of plants from the campus. Sighting of Bluebull droppings near the greenhouse on the campus came as a surprise to all.

After the walk, information regarding the citizen science applications viz. [eBird](#) and [iNaturalist](#) was shared with the participants by Mr. Viral Vadodariya and Mr. Karan Thakkar respectively.

Thereafter, the staff gathered for a group discussion at 9:30 am on various Biodiversity related issues like increasing anthropogenic activities, loss of important habitats, and other factors that threaten biodiversity. The discussion was initiated by the honorable director of the institute Dr. V. Vijay Kumar. The discussion was picked up by the other scientists and scholars of the institute. The discussion was enriched by Dr. Jayesh Bhatt's valuable points regarding plants. Dr. V. Kannan and Dr. Soumya Dasgupta also shared their experience on their respective field of research i.e. Animal biology. Dr. K. Karthikeyan and Dr. Sanjay Babu coordinated the event. The honorable director announced the release of a special issue in the GUIDE newsletter series on biodiversity



day celebration. All the researchers and other staff members were inspired by the activities and the interactive session held as part of the programme.

The Discussion was followed by a presentation of photographs submitted for the Photography competition as well as slogans for the slogan competition. The achievers were awarded a sapling of the critically endangered gugal tree (*Commiphora wightii*). Winners of the competition are as below:

**Photography competition-**1. Ms. Monika Sharma, 2. Ms. Krishna Gadhvi, 3. Mr. MasudBadi

**Slogan competition-** 1. Ms. Bhagwati Kannad, 2. Mr. Ratansinh Chaudhary, 3. Ms. Tejashwi Pindolia

The celebration wouldn't have been possible without the volunteers Mr. Raj Joshi, Mr. Jayanti Barot, Mr. Bhavesh Rabari and Mr. Rafiq bhai.







**Table:1 List of Fauna recorded during  
the Nature Walk**

Common name	Scientific name	IUCN status
<b>Birds</b>		
Purple Sunbird	<i>Cinnyris asiaticus</i>	Least concern
Asian Koel	<i>Eudynamys scolopaceus</i>	Least concern
Baya Weaver	<i>Ploceus philippinus</i>	Least concern
Red-vented Bulbul	<i>Pycnonotus cafer</i>	Least concern
Blue rock Pigeon	<i>Columba livia</i>	Least concern
House Sparrow	<i>Passer domesticus</i>	Least concern
Indian Silverbill	<i>Euodice malabarica</i>	Least concern
Little Swift	<i>Apus affinis</i>	Least concern
Shikra	<i>Accipiter badius</i>	Least concern
Greater Coucal	<i>Centropus sinensis</i>	Least concern
Eurasian Collared Dove	<i>Streptopelia sinensis</i>	Least concern
Red-naped Ibis	<i>Pseudibis papillosa</i>	Near threatened
White-eared Bulbul	<i>Pycnonotus leucotis</i>	Least concern
Red-rumped Swallow	<i>Hirundo daurica</i>	Least concern
Common Tailor Bird	<i>Orthotomus sutorius</i>	Least concern
Indian Robin	<i>Copsychus fulicatus</i>	Least concern



Laughing Dove	<i>Streptopelia senegalensis</i>	Least concern
Rose-ringed Parakeet	<i>Psittacula krameri</i>	Least concern
<b>Mammals</b>		
Five-striped Palm Squirrel	<i>Funambulus pennantii</i>	Least concern
Bluebull ( <i>Indirect evidence</i> )	<i>Tragocamelus boselaphus</i>	Least concern
<b>Reptiles</b>		
Spiny-headed Fan-throated Lizard	<i>Sitana spinacephalus</i>	Least concern

Table: 2 List of Flora recorded during Nature walk

Sr. No	Scientific Name	Common Name	IUCN Status
1	<i>Azadirachta indica</i>	Neem	LC
2	<i>Millingtonia hortensis</i>	Indian Cork Tree	
3	<i>Delonix regia</i>	Royal poinciana	LC
4	<i>Cordia dichotoma</i>	Indian Cherry	LC
5	<i>Euphorbia tirucalli</i>	Indian tree spurge	LC
6	<i>Terminalia catappa</i>	Indian almond	LC
7	<i>Acacia nilotica</i>	Gum arabic tree	LC
8	<i>Prosopis juliflora</i>	Mesquite	
9	<i>Prosopis cineraria</i>	Spunge tree	
10	<i>Eucalyptus globulus</i>	Tasmanian bluegum	LC
11	<i>Parkinsonia aculeata</i>	Parkinsonia	LC
12	<i>Conocarpus lancifolius</i>	Conocarpus	NT
13	<i>Manilkara hexandra</i>	Ceylon iron wood	
14	<i>Abrus precatorius</i>	Rosary pea	
15	<i>Duranta erecta</i>	Golden dewdrop	LC
16	<i>Lawsonia inermis</i>	Henna	LC
17	<i>Bauhinia purpurea</i>	Butterfly orchid tree	LC
18	<i>Commiphora wightii</i>	indian bdellium tree	CR
19	<i>Peltophorum pterocarpum</i>	Copperpod	
20	<i>Salvadora persica</i>	Miswak	LC
21	<i>Salvadora oleoides</i>	Miswak	DD
22	<i>Albizia lebeck</i>	Indian Siris tree	LC
23	<i>Pithecellobium dulce</i>	Manila tamarind	LC
24	<i>Clerodendrum inermis</i>	Sankuppi	
25	<i>Sterculia foetida</i>	Java olive tree	
26	<i>Pongamia pinnata</i>	Indian beech	LC
27	<i>Cordia sinensis</i>	Grey leaved saucer berry	LC
28	<i>Cassia fistula</i>	Indian laburnum	LC
29	<i>Syzygium cumini</i>	Java plum	LC
30	<i>Fagonia cretica</i>	Fagonia	LC
31	<i>Euphorbia heterophylla</i>	Japanese poinsettia	LC
32	<i>Cymbopogon citratus</i>	Lemon grass	



33	<i>Thevetia peruviana</i>	Yellow oleander	LC
34	<i>Nerium oleander</i>	Oleander	LC
35	<i>Sesbania grandiflora</i>	West Indian Pea	
36	<i>Chloris babata</i>	Feather fingergrass	
37	<i>Acacia senegal</i>	Gum arabic tree	
38	<i>Ziziphus numularia</i>	Wild jujube	
39	<i>Punica granatum</i>	Pomegranate	LC
40	<i>Casurina equisetifolia</i>	Beach she-oak	
41	<i>Moringa oleifera</i>	Drumstic tree	LC
42	<i>Ficus glomerata</i>	Cluster fig	LC
43	<i>Bougainvillea spectabilis</i>	Bougainvillea	
44	<i>Aloe barbadensis</i>	Aloevera	
45	<i>Thespesia populnea</i>	Indian tulip tree	LC
46	<i>Agave americana</i>	Century plant	LC
47	<i>Caesalpinia pulcherrima</i>	Peacock flower	LC
48	<i>Manilkara zapota</i>	Sapodilla	LC
49	<i>Tamarindus indica</i>	Tamarind	LC

**Table 3: List of participants in various events**

Dr. V. Vijay Kumar	Mr. Mukesh H. Koladiya	Mr. Supriya Maity
Dr. Jayesh Bhatt	Mr. Viral Vadodariya	Ms. Tejashwi Pindolia
Dr. V. Kannan	Ms. Monika Sharma	Mr. Ratansinh Chaudhary
Dr. Soumy Dasgupta	Ms. Pallavi Joshi	Mr. Hirji Dangar
Dr. Sanjay Babu	Ms. Bhagwati Kannad	Mr. Ajay Gohel
Dr. K. Karthikeyan	Ms. Krishna Gadhvi	Mr. Raj Joshi
Dr. G. Jayanthi	Mr. Masud Badi	Mr. Jayanti Barot
Dr. L. Prabha Devi	Mr. Karan Thakkar	Mr. Bhavesh Rabari



Photo by: Dayesh Parmar





## 8. The Summer course on “Sustainable Agricultural Solutions” at Israel - An eye-opening experience

Ms. Monika. R. Sharma

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Institute of Desert Ecology, Bhuj, Gujarat

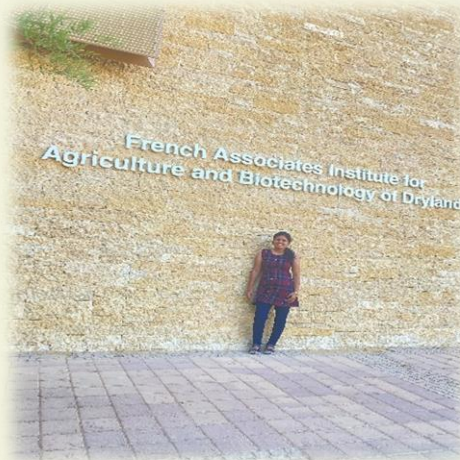
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I have been selected for the International Summer Course on “Sustainable Agricultural Solutions” being Organized by Sede Boker Campus of Ben Gurion University in the Negev, Israel held during 3<sup>rd</sup> to 28<sup>th</sup> July 2022, the main objective of the course was to provide fundamental and cutting-edge knowledge and technology with an integrated academic perspective related to agricultural practices for improving food and water use worldwide, particularly in view of global desertification. As food and water are essential to human existence and their availability is limited by the increasing global population, the interplay between agricultural yields and water resources is vital for providing food and water to the growing population. In this context, water use efficiency can be increased by the sustainable and efficient management of available resources. In this course selected student came from all over the world.

The four-week long intensive course plan composed of three tracks that cover soil and irrigation, plants under abiotic stress and aquaculture, including fish and microalgae. expert Hands-on experience achieved by experimental sessions (including field-and/or lab-based projects) and concluding seminar presentations by the students. The experiments were specially designed for the course, conducted by the students and supervised by the scientists. Practical and lectures were conducted through integration of the three tracks as emphasized in the programme schedule. The lectures were delivered by Professors, Noam Weisbord, Aaron Fait, Simon Barak, Yoni Ephrath, Merav Seifan, Dina Zilberg and researchers, Ilya Gelfand, Vered Tzin, Dilia Kool and Natalie De Falco. Research students also delivered lectures about their research topics and specializations. The very interesting feature of the course was the educational trips to various agriculture fields and food processing centres. At the R&D Ramat Negev the desert viticulture and wine making were explained. During the second week we visited Mashash experimental Olive, cashew, almond, wine yard,



Dates and Pomegranate farm and Yatir forest which is the largest planted forest, Limans in the Negev – forestry and rain water harvesting method for arid regions. We were taken to the Jerusalem city, the oldest cities of the world and considered holy for three major Abrahamic religion: Judaism, Christianity and Islam. The participants had presented their research at Gilat and FAAB Arid Agriculture and Biotech student symposium We have *climbed* the Ein Ovdad hill to see the natural spring fall and then visited the residence of the residence of the First prime minister of Israel Ben Gurion Home. In his bedroom we have seen Mahatma Gandhij's photo and a big library housing more than 5000 books. We visited the solar plant system in Negev desert and greenhouse with lots of cherry tomato hanging in hot climate. We had an opportunity to observe the Ramon crater (the world's largest "erosion cirque"), Eilat Bird sanctuary, beach of Mediterranean Sea and Dead Sea. The people of Israel are hardworking towards realisation of the blooming desert and respect the Glory of their country and culture and at same time their dedication and love towards the international students was very much amazing to me. The one month stay and study in Israel is unforgettable with wonderful experience and memories in my lifetime.



## 9. Upcoming Seminars/ Conference/ Events/ Internship

### ✚ Conference

- ✓ Global conference on Renewable Energy and Climate Change (GCRECC), Date: 8<sup>th</sup> February 2023, Venue: London, United Kingdom
- ✓ International Conference on Environmental, Food, Agriculture and Bio-Technology (ICEFABT), Date: 16<sup>th</sup> March 2023, Venue: Melbourne, Australia
- ✓ 6th World Plant Genomics and Plant Science Congress 16-17 March 2023, Dubai, United Arab Emirates
- ✓ International Conference on Aquaculture Production Technology (ICAPT-23) 4<sup>th</sup> March 2023, On-site / Virtual Delhi, India
- ✓ International Conference on Global Warming and Oceanography (ICGWO-23) On-site / Virtual 4<sup>th</sup> March 2023, Bengaluru, India
- ✓ International Conference on Recycling and Waste Management (ICRWM-23) ,11<sup>th</sup> March, Visakhapatnam, India
- ✓ International Conference on Ecology (IC-E-23) On-site / Virtual Chennai, India.
- ✓ 7th Edition of Global Congress on Plant Biology and Biotechnology Online Event, 16-18 March 2023.



Photo by: Dayesh Parmar

