

# FAUNA - 2021

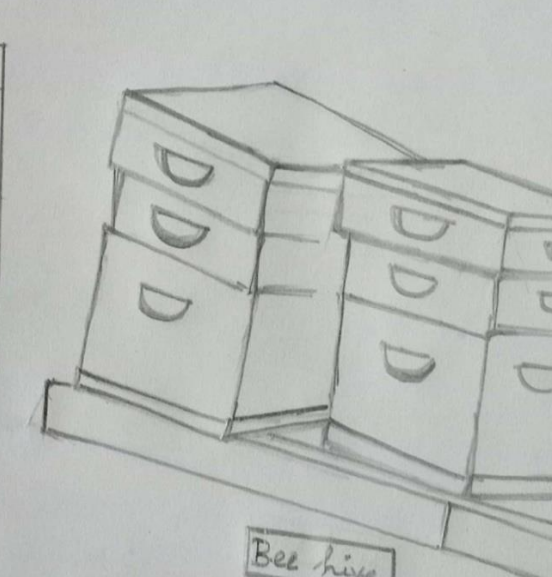
**Apidiculture:**  
Rearing of honey bee (*Apis indica*) in garden or in house is a traditional practice for obtaining pure honey.

The products of beekeeping (pure honey and pure wax) have an ever rising demand in pharmaceutical and other industries. This lucrative offer encourages the flourishing of bee keeping in rural areas. Less investment and minimum caring are two compelling forces for farmers. Agriculture with apiculture is observed to rise more crop yield through augmented rate of pollination. So, apiculture is an integral part of organic farming. Apiculture is a low cost profitable employment generating and green technological practice. India needs to flourish apiculture to foster rural economic growth.

**Composition of honey:**

Component	Average value
Water	17.2%
Fructose	38.2%
Glucose	31.3%
Sucrose	1.3%
Maltose	7.3%
Other sugars	1.5%
Galactonic acids	0.43%
Lactone	0.16%
Telluric acid (as plant)	0.53%
Ash	0.169%
Nitrogen	0.04%
Diastase	20.8%

**Bee hive**



Name - Manvita Mahat  
6th Sem.


**Vermicomposting**

• Vermicomposting is a process of conversion of biomass waste into compost. It is actually the excretion of earthworms (*Eisenia*, *Fedina* and *Lumbricus rubellus*), which are suitable to plants and acts as primary fertilizer. It contains -  
OC = 9.5-17.98%  
N = 0.5-1.50%  
P = 0.1-0.30%  
K = 0.15-0.36%  
NA = 0.6-0.50%

All kinds of garden wastes and cow dung are raw materials of it.

• The composting process needs 7 steps within 50-60 days. These are - (1) Preparation of bed, (2) Addition of food, (3) Addition of worms, (4) Feeding and caring, (5) Harvesting of castings etc.

• This is low cost high income, employment generating and profitable green technology. It is one of the strategies for solid waste management and also an integrated component of organic farming. So, farmers will be encouraged for organic farming that will lead sustainable development of a country.



Name - Chaiti Chatterjee  
4th Sem.

## THE YEAR 2021: THE INTERNATIONAL YEAR OF CREATIVE ECONOMY FOR SUSTAINABLE DEVELOPMENT

Covid-19 has paralyzed national and global economy. The international understanding is to promote economic growth through traditional practices, technology innovation and providing opportunities to all. Organic farming is the best way for faster economic growth and sustainable development in India. Conventional practices such as apiculture, fish culture, pearl culture, vermicomposting, organic crop farming, organic animal husbandry, agro-industry etc. will be encouraged by the Indian Government. This will generate a huge employment generation and will foster the socio-economic and environmental development. So, all the farmers, researchers and executives will be united to succeed the goal.



Name - Gauri Raj Chaudhary  
Ex-Student 2020

## Current news

Vibrant blue colouration in *Tarentula* is indicated for communication and green colouration for concealing among foliage.

Army ants are homeless. They travel all the day and build a temporary nest at night.

Saharan silver ant is the world fastest ant and its walking speed is ~50m/s.

Name - Shipra Dubey  
Semester - IV



*Lycosa tarantula*



Amy ants (*Eciton* sp.)



Amy ants (*Labidus* sp.)



Saharan silver ants (*Cataglyphis bombycina*)

Octopus are probably the world's most skilled camouflage artists.

No two Royal Bengal Tigers have the identical stripes.

Mangrove forests can sequester C 3-5 times more than tropical rainforests.



Octopus



Royal Bengal Tiger



Sundarban mangrove forest

## Pollen - Sized Technology

During a recent study, Cornell University developed technology to provide beekeepers, consumers and farmers with an antidote for deadly pesticides, which kill wild bees and cause beekeepers to lose around a third of their hives every year on average.

An early version of the technology, which devised a widely used group of insecticides called organophosphate - is described in a new study, "Pollen-inspired Enzymatic Microparticles to Reduce Organophosphate Toxicity in Managed Pollinators". Published in the journal *Nature Food*.

After a series of in vitro experiments, the researchers tested the system on live bees in the lab. They fed a food of bees malathion, an organophosphate pesticide, in contaminated pollen and also fed them the microparticles with the enzyme. Bees that were fed the microparticles with a high dose of the enzyme had a 100 percent survival rate after exposure to malathion.

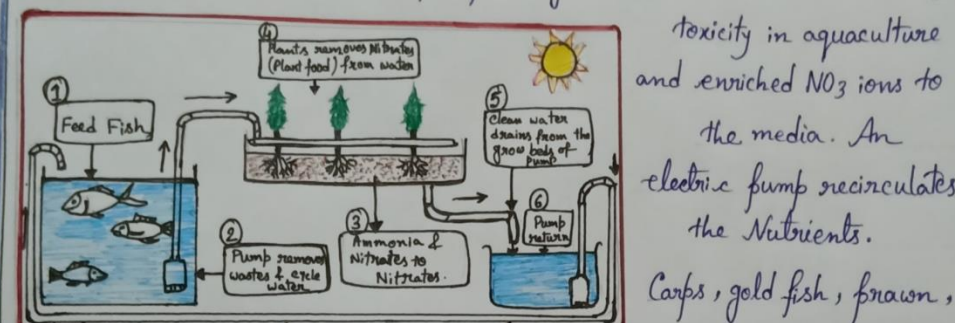
The company is currently testing trials this summer on 2400 hives in New Jersey and plans to publicly launch its product starting in February 2022. Products include microparticle spray in dry sugar medium that can be added to pollen patties.

"This is a low-cost, scalable solution which we hope will be a first step to address the insecticide toxicity issue and contribute to the protection of managed pollinators."

Name - Pujia Kumari, 4th Sem.

## AQUAPONICS

Integration of aquaculture with hydroponics is an emerging and profitable practice of organic farming. Here, water is used as nutrient media and fish excreta as fertilizer for plant growth. Nitritation reduces NH3 toxicity in aquaculture and excreted NH3 ions to the media. An electric pump recirculates the nutrients.



Carp, gold fish, prawn, mos, tilapia etc are cultured popularly in the system. Simultaneously, leaf vegetables with low to medium nutrient requirement like Chinese cabbage, lettuce, basil, spinach, herbs etc. are cultivated easily. Aerial vegetables with high nutrient demand, such as tomato, cucumber, peppers, capsicum, chili, peas, grams, beans, mung etc are also reared successfully with high stocking density of fish. Pests are controlled by biological means.

Aquaponics offers the production of both fish and crop at a time using small farming area with low investment and medium care. So, the practice is highly profitable to farmers. Indian farmers will be encouraged to practice aquaponics as easily manageable, profitable and eco-friendly.

Name - Rupa Saha, Alumnae.

## ORNAMENTAL FISH FARMING

Ornamental fish farming is the culture of attractive, colorful fish, fishes of various characteristics, which are reared in a controlled aquatic system. Ornamental fishes can also be called living jewels. The culture of ornamental fishes is known as *Aquarioculture*.

**Categories of Ornamental fishes:**  
(i) Egg-layer (Oviparous)  
(ii) Live-bearer (Viviparous)

Egg-layer is again categorized as -

- Egg scatter laying non-adhesive eggs
- Egg scatter laying adhesive eggs
- Egg-bursters
- Mouth-incubators
- Nest-builders and
- Egg-guarders.

**Feeding:**  
Equipment home-made mouth like whole wheat bread, mackerel, beef liver and dried will be fed. But most forms rely on fish meal, tubifex worms, mosquito larvae.

**Cultural Practices:**  
Most frequent culture facilities utilized for decorative fish are cement tubs, glass aquaria, earthen ponds, earthen pots etc. All glass aquaria are favoured for breeding purposes where certain ornamentals can be utilized easily. The temp. of the breeding water in the region is 25°C to 28°C. Water pH is slightly alkaline.

Scientific Name	Common Name
<i>Carassius auratus</i>	Goldfish
<i>Poecilia reticulata</i>	Guppy
<i>Xiphophorus hellerii</i>	Gambusia
<i>Platyphillum scalare</i>	Angel fish
<i>Parachanna octota</i>	Parrot fish
<i>Brycon reticulatus</i>	Parrot fish
<i>Channa striata</i>	Snakehead

Name - Jyoti Mondal  
Dept. of Zoology.

## New species : Chocolate frog

### CHOCOLATE FROG

A new species of tree frog has been discovered from New Guinea that resembles the chocolate frog from the Harry Potter film series.

Chocolate frog (*Litoria mira*) was discovered by Australian researchers 'Paul Oliver' & 'Steve Richards' in New Guinea who was dwelling in hot & humid rainforests whereas the species in Australia is adapted to Savannah.

It is different due to its unique webbing on hand, short & robust limbs & violet patch of skin near its eyes.

Steve Richards, spotted the creature in 2016 & took a few specimens for genetic tests & research. Scientists announced the discovery in a paper published in the Australian journal of Zoology on May 20.



Chocolate frog (*Litoria mira*) discovered by Paul Oliver & Steve Richards from New Guinea rainforest in 2021.

Name - Sanghita Gope, Ex-Student

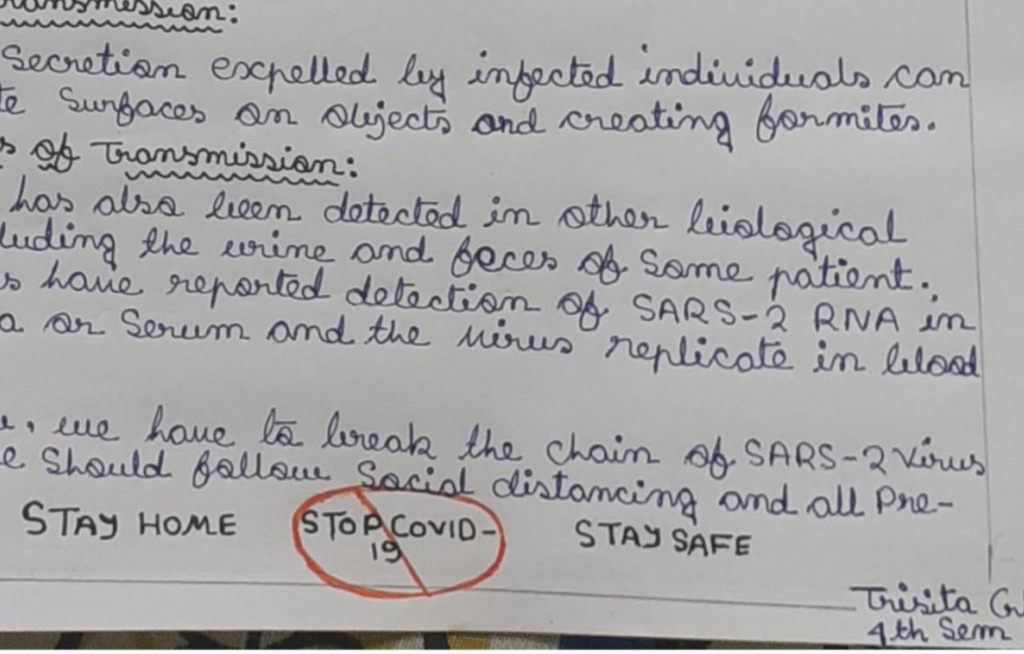
## Transmission of SARS-2 Virus

World Health Organization update Summaries of COVID-19 Transmission can be found in the following WHO guidance Documents.

This section briefly describes possible modes of transmission for SARS-cov-2, including contact, droplet, airborne, faecal-oral, faecal-anal, blood, vomit, mother to child and animal to human transmission.

- Contact and Droplet Transmission:**  
Transmission of SARS-2 can occur through direct close or indirect contact with infected people through saliva and respiratory secretions on their respiratory droplets which are expelled when an infected person cough, talk or sneeze. Indirect contact transmission involving contact of a susceptible host with a contaminated object or surface may also be possible.
- Airborne Transmission:**  
Airborne transmission is defined as the spread of an infectious agent caused by the dissemination of droplet nuclei that remain infectious when suspended in air over long distance and time.
- Fomite Transmission:**  
Respiratory secretions expelled by infected individuals can contaminate surfaces on objects and creating fomites.
- Other modes of transmission:**  
SARS-2 RNA has also been detected in other biological samples, including the urine and feces of some patient. Some studies have reported detection of SARS-2 RNA in either plasma or serum and the virus replicate in blood cells.

For now, we have to break the chain of SARS-2 virus for that we should follow social distancing and all precautions.



SARS-CoV-2 TRANSMISSION

## Why are we aged?

Life is destructive. Human beings are expected to live on average 75 years. So the question is why don't we live forever - why age at all?

To answer this question, we need to understand what happens to our bodies as we age.

**THEORIES OF AGING:** The idea is that our genes determine how long we live. We have some genes that tell our body how long it will live. If we could change that particular gene, we could live longer.

The second theory is that over time, our body and our DNA get damaged until we can no longer function properly. The idea here is that how long we last is really is just a consequence of small changes in our DNA. These changes add up until the total amount of damage is too much to bear and we die.

Reality is a combination of these two ideas. In the past decade, scientists have found evidence to support both theories.

**CAN WE DO ANYTHING TO STOP AGING?**  
There is no "cure" against aging, and probably there'll never be. But there is a lot we can do to stay healthy in the later years. A healthy diet, regular and moderate exercise, helps to reduce stress and minimize free radicals from doing harm. Sports activity improves the immune system, which effectively slow down the aging process.

"We are programmed to die."  
- Srujeeta Ghosh - 4th Semester.

