

Best Practice I: Medicinal Plant Garden of Jhargram Raj College

1. Title of the practice

Medicinal Plant Garden of Jhargram Raj College

2. Objectives of the practice

- i) Collection of ethno botanical knowledge from ethnic people
- ii) Collection & in-situ conservation of Medicinal Plants
- iii) Botanical identification
- iv) Engaged students in regular maintenance
- v) Hands on training to students for multiplication of these plants

3. The context

Jhargram is the 22nd district of West Bengal. Jhargram district covers an area of 3037.64 Sq. km. Out of which 1982 sq. km is agricultural land and 602 sq. Km. is under forest coverage. Jhargram is located at 22.45° N 86.98° E. It has an average elevation of 81 meters (265 feet).

The population of ethnic people in Jhargram district is the largest in West Bengal. About 17.55% population of this district is of ethnic communities. Most of them are inhabited in the western forest region. The district is rich in plant diversity also. Many wild plant species are under threat of increasing human population.

The ethnic communities of the district have valuable traditional knowledge of their own. Their indigenous ethno medicinal knowledge for curing numerous diseases (of both human and veterinary) is invaluable to strengthen modern system of medicine.

4. The Practice

Protected land area of our Institution is about seventeen acre with nearly two hundred trees. Campus of this Institution is like an Arboretum. Major tree species are *Shorea* sp, *Madhuca* sp, *Pterospermum* sp, *Mangifera* sp, *Terminalia* sp etc. Apart from there are many herbs and

shrubs species present in our campus. Institution has tried to develop a plant record register with the help of students of department of Botany.

Institution has developed two separate patches especially for medicinal plants. In this garden all plant species have separate bed and name plate. Name plate is consisting of scientific name, common name, local name and taxonomic family. Every plant species has separate serial number and this number is same with the plant record register.

Students especially of department of Botany are directly involved with this garden in all activities under close monitoring of Teachers of department of Botany. The study includes morphological study, plant identification, plant propagation, pest and disease management, weeding etc. At present there are a good number of plant species are available in the college campus under about one hundred forty genera and all have medicinal uses.

5. Evidence of success

Students, College staffs, Guardians and others came to know about medicinal plants and their uses. Especially students gathered knowledge about the maintenance and vegetative propagation methods which are their part of academic syllabus also. Hands on training on vegetative propagation viz. cutting, budding, grafting etc. developed the skill of our students in the field. The name of the garden has been dedicated to Ayurvedacharyya Shibkali Bhattacharya. The garden has made the college campus more green. In conservation point of view, the Institution has conserved some exotic plant species of this area viz. *Buchanania cochinchinensis*, *Rauvolfia serpentina*, *Aristolochia indica*, *Hemidesmus indicus*, *Asparagus racemosus*, *Gloriosa superba* etc.

6. Problems encountered and Resources required

Soil of Jhargram is red lateritic and the water holding capacity is very poor. November to June, about eight months is dry season for this locality. So, it is become a challenge to the Institution to make all the herb species to survive. Institution has adopted some deep irrigation system but that is not sufficient for all the species.

Institution has lost some plant species during prolonged lock down period during 2020-2021. Now Institution is trying to recollect them. Uninterrupted water supply is required for these plants. So one deep irrigation system is required for Medicinal Plant Garden.



Best Practice II: Preparation of Sanitizer in Jhargram Raj college

7. Title of the practice

Preparation of sanitizer in Jhargram Raj College

8. Objectives of the Practice

During the pandemic situation our college' authority has decided to help the local public to sensitize about the incessant fatality of death-claiming SARS-CoV-2. As our college is also known for its social activities along with academic excellence, it is a small but impactful endeavor to make homemade hand sanitizers and distribute them amongst the needy people with free of cost. As there is a shortage scenario in our local market, the college authority has got the impulse of situation and initiated the programme the betterment of the people our effort will reduce the transmission of the virus and also help its supply chain to reach the sanitizer to every doorstep. The complete management procedure is micromanaged by local SHG (self-help group) as decided by the college delegation board.

9. The context

Hand sanitizer, also called hand antiseptic or hand rub, agent applied to the hands for the purpose of removing disease-causing organisms. Hand hygiene is one of the most important measures to prevent the spread of infectious diseases. Hand sanitizer use is recommended when soap and water are not available for hand washing or when repeated hand washing compromises the natural skin barrier. Although the effectiveness of hand sanitizer is variable, it is employed as a simple means of infection control in wider areas such as daycare centres, schools, college, university, hospitals, health care clinics and super markets. As a result of rising awareness about hand hygiene and its benefits, there has been a constant increase in demand of hand sanitizers. Hand sanitizers typically come in foam, gel, or liquid form. We are manufacturing of alcohol based liquid hand sanitizer in our college campus during COVID pandemic period because crisis of hand sanitizer in our local area.

10. The Practice

We have prepared the sanitizer initially in 500 ml scale following WHO guideline* and we used the product. We had not observed any side effects. Then we have scaled up the production of the sanitizer by 100 liters. There was a huge demand of the sanitizer during the first phase of the pandemic situation and district administration, Jhargram had advised us to train few self help groups (SHGs) for the preparation of the hand sanitizer to address the local demand. We have train **Anandadhara**, women self help group (SHG) and they assist us to preparer a large volume of sanitizer.

Method of Preparation (10 liter scale):

8333 ml of 96 % ethanol was taken in larger glass beaker placed on a magnetic c stirrer followed by the addition of 417 ml 3% (v/v) Hydrogen peroxide and 145 ml of 98% Glycerol 98%. The mixture was stirred well for few minutes. Finally fragrance was added externally for better smell.

11. Evidence of success

During pandemic, loss of jobs and lives were common. Moreover, in Jhargram, some of the local women are shy and restrict themselves in house holding activities. In this context, catering local women has increased their level of confidence and also was a source of income.





Time: 17-07-2020 15:44
Note: sanitizer preparation 6

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Time: 17-07-2020 15:35
Note: sanitizer preparation

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হ্যান্ড স্যানিটাইজার তৈরীর প্রশিক্ষণ

ঝাড়গ্রাম

www.youtube.com/c/expressnewsbengal

SUBSCRIBE

A video frame showing a group of people in a classroom setting. A man in a plaid shirt is pouring liquid from a white jug into a container. Other people are standing around him, some wearing face masks. A banner in the background mentions 'Hand Sanitizer Preparation Training'. The video has a red play button icon and a 'SUBSCRIBE' button.



6. Problem encountered & Resources Required

Harmful effects of hand sanitizers on human health

Ethanol poisoning:

Ethanol is widely used as a disinfectant and alcoholic beverage. The possibility of skin absorption and skin cancer through carcinogenicity remains unclear. There is no specific measure to assess toxic levels of ethanol disinfectants. Various studies have proven that acute exposures are not toxic. However, blood ethanol levels are affected with long-term exposures to ethanol-based hand sanitizers. In humans with 33% damaged skin, 70% ethanol is absorbed through the skin. Moreover, exposure to ethanol-sensitive skin can cause systemic toxicity and reaction to the system. In cosmetics, it is also not suggested to use ethanol on injured skin. Eye irritation, skin dryness, cracking, redness, itching, and contact dermatitis can be caused by regular exposure to ethanol. Studies have showed that ethanol sanitizers affect the concentration of ethyl glucuronide in urine. Acute alcohol poisoning can be caused by any daily home use items like alcoholic hand sanitizers (ABHS), mouthwash, cosmetics, and so on. Clinical symptoms appear at a certain concentration of alcohol in the blood. Lethal dose of ethanol can be life threatening. Symptoms begin 1 to 2 h after consuming ethanol-

based hand sanitizers. Symptoms like vomiting, epigastric pain, and various depressions of the central nervous system are commonly seen. Ethanol poisoning has also been linked to hyperthermia, possible heart attacks, arrhythmia, hypoglycaemia, ketoacidosis, and hypotension.

Isopropyl alcohol poisoning:

Isopropyl alcohol also irritates the mucous membranes in the stomach and may result in gastritis associated with ketosis, hypoglycaemia, respiratory depression, and high serum creatinine. A high dose can weaken heart muscle and its long-term use is conducive to rhabdomyolysis, myoglobinuria, and acute renal failure. Seventy percent of the deaths were associated with ingestion of ≥ 400 mg/dL in concentrations of 70% isopropyl solution. Isopropanol absorption through the skin can cause skin irritation, and prolonged and frequent exposure can cause blemishes, wrinkles, redness, and dryness.

Toxicity of hydrogen peroxide:

Hydrogen peroxide is only risky when consumed in high concentration. In some cases, it causes portal vein obstruction, abnormalities in the stomach, slight irritability, and vomiting of *sous vide*. It creates toxic gases which when it comes in contact with tissues, it breaks down in oxygen and water. The presence of oxygen and water can cause air embolism in many organs.

Resources required:

The principal raw materials required for the production of hand sanitizer are ethanol or isopropanol, glycerol, hydrogen peroxide, normal water and essential oil such as peppermint or Lavender oil or lemon extract. Except alcohol other all enlisted raw materials procured from local market only alcohol supply from Jhargram police station.