



Use Of Bio-Resources In Libraries For The Sustainable Development

Mr. Prodyut Kumar Mondal

Librarian

Acharya Jagadish Chandra Bose College
1/1B, A. J. C. Bose Road, Kolkata-7000020

Abstract

Ayurveda are science of life, which not only have curative drug but have describe prevention of disease. This science include all natural resources for achieve its Moto, like herbal drug, marine thing, stones (jeams), bhasma of dhatus etc. In between period whole world get attracted toward modern medicine and modern goods. This modern goods and medicine get popular due to its instant result and durability. Slowly people realized side effect of all that chemical agents.

Nowadays people get attracted toward bio-resource because they want to stay healthy & away from side effect. The uses of bio resource are best for human. But its sources are limited. If we decide use pollutant free goods or herbal drug than we must grow it, or else it subsequently result in the loss of their existence. Library can also use pollutant free or herbal goods which are friendlier to the environment and human being. India has richest area of plants. Variety of bio-resources is available in that area. So there is an urgent need to establish the traditional path and utilize all this bio-resources in the library. This paper describe the bio-resources and its application in library.

Keywords: Bio-resources; library; library science; library materials; pollution

1. Introduction

Bioresources are the naturally occurring materials which are sustainably renewable and biodegradable. A variety of bioresources are present on the planet earth, which mainly includes agricultural crops, waste from agriculture, forest and various industries, marine resources like fishes and aquatic crustaceans, weeds, grasses, etc. All these bioresources are of huge significance and can be used as raw material or feedstocks for the production of a wide range of valuable products that are economically and industrially important. The bioresources are considered as one of the centers of bioeconomy. On the one hand, these are responsible for the generation of employment and sufficient income to individuals and industries that collectively contribute to the economy of the nation. However, on the other hand, overexploitation of bioresources can generate adverse impacts on the environment and can destroy the environment. Similarly, improper utilization of these bioresources can have adverse social and economic effects. The main aim of the present chapter is to discuss the type, composition, and properties of various bioresources and their applications in the production of a wide

range of high-value products. Moreover, different environmental, social, and economic impacts due to the utilization of bioresources are also discussed.

Indian subcontinent is well known for its diversity of forest & the age old healthcare tradition. Every state of India has different culture, climates & plants. As per one Sanskrit shloka, “No Plants on Earth, Which doesn’t have Medicine Properties”. As growth of the human population increase more and more, natural area & resources began utilized to build buildings. Such condition invites much new disease. With development in technology and industry, healthcare sector also grow rapidly, new generation of antibiotics are coming in market. But such synthetic drugs are not digested in human body & have its own side effect. To prepare this synthetic drug pollution of air and water also occur. Nowadays people get attracted toward bio- resource because they want to stay healthy & away from side effect of medicine. Ayurveda are science of life, which not only have curative drug but have describe prevention of disease. This science include all natural resources for achieve its Moto, like herbal drug, marine thing, stones, bhasma of dhatus etc .

The uses of bio resource are best for human. But its sources are limited. If we decide use herbal materials or goods than we must grow it, or else it subsequently result in the loss of their existence. The ongoing growing recognition of medicine plant is due to several reasons, including establishes faith of people on herbal medicine. Many NGO starts cultivating medicinal plants & botanical garden. Importance of ‘Gomutra’ well known to worlds so growing pet animals which are useful for medicine is also need of time. India have richest area of medicinal plants, so there is an urgent need to establish the traditional bio-resources value in both national & international perspective realizing the ongoing development trend. Bio-resources can be used in library for different purpose and make the world pollutant free and good habitat for the generation next and next.

2. Definition of Bio-resources

Bio-resources are non-fossil biogenic resources which can be used by humans for multiple purposes to produce food, substantial products, and/or energy carriers.

Types of Bio-Resources

- a. Primary Bio-resources.
- b. Secondary Bio-resources.
- c. Tertiary Bio-resources.
- d. Quaternary Bio-resources

a. Primary Bio-Resources

Primary bio-resources are generated for a specific purpose. It may generate in forest, agriculture or aquaculture to enable the production of food, substantial products, or eventually energy. Examples are Grain, fish, Potato, Wood, algae, bamboo.

b. Secondary Bio-Resources

Secondary bio-resources are generated during primary processing (in further industrial processing) as by-products or residues, it can be generated during maintenance of large green areas.

Characteristics of Secondary bio-resources are:

- a) They accrue genuine from virgin materials.
- b) They contain low amount of impurities
- c) They are produced in large quantities.

a. As maintenance residues they are harvested on large green areas such as parks, lawns, sport places, and

dikes as genuine fractions in significant amounts under controlled conditions in ample quality in terms of purity and freshness.

C. Tertiary Bio-resources

Tertiary bio-resources are also parts from virgin materials, which were separated along the processing chain. But compared to secondary bio-resources they are residues which occur rather in small amounts at the generation place and/ or are not genuine. Also uncontrolled modifications, E.g. degradation during storage, may have taken place.

Characteristics of Tertiary bio-resources are:

- i. They have lower value than secondary bio-resources.
- ii. In maintenance of green areas such as gardens, other green areas, and special installations with vegetation.
- iii. The plant residues are not genuine and/or often partly degraded before they arrive in a utilization facility.

D. Quaternary Bio-Resources

Quaternary bio-resources occur after a product was used. They can be distinguished regarding the time frames of their generation after start of utilization into short, mid, and long- term categories. In short-term after begin of product use they are generated in all cases of food and feed consumption in the form of human feces and urine and as animal excrements. Such bio-resources are generated with short delay after food or feed consumption at a time scale of hours. With a mid-term delay the quaternary bio-resources appear in days to months after begin of utilization.

Example No.1: packaging materials are only in use for the period of transport, newsprints for one time readings. The timeframe for the long-term after use group can reach from years to centuries.

Example No.2: wood construction materials, integrated in houses may last decades to centuries till they become waste wood. Materials used for furniture construction commonly have a life-time ranging from years to decades.

3. Need of Use of Bio-resources

With development in technology and industry, healthcare sector also grow rapidly, new generation of antibiotics are coming in market. But such synthetic drugs are not digested in human body & have its own side effect. To prepare this synthetic drug pollution of air and water also occur. Nowadays people move toward natural thing which give less side effect and which is eco-friendly also.

“Bioresources” are laboratory animals, plants, cells, genes, and microorganisms used for researches. Bio means “biology” and resource means as is “resource”. In other words, it is called “biological resources”.The basic mechanisms of life are common to many organisms. We are conducting research on the causes and treatment of diseases using experimental animals as models. The functions of plants and microorganisms are used to solve food and environmental problems and improve our health.

If there is no bioresource ...There are many problems surrounding our lives, such as illness and food shortages. To solve these problems, life science research is needed. Various bioresources are used in research and development. Without bioresources, they cannot conduct researches of diseases or drug development. Issues on the environment, energy and food that support our lives would remain unsolved. In addition, bioresources are necessary for a research on health and production of proper amount of food.Because there is

bioresource, it becomes possible! Bioresources support the development of life sciences and bio industry. The results of many studies using bioresources, from basic research to the development of new drugs, have been helped our lives. Understanding disease / Making drugs .For basic studies of causes and treatments of human disease, experimental animals such as mice, and human and animal cells cultured in test tubes are used. Comparing sick animals with healthy animals can help our understanding of the cause of the diseases. Furthermore, if you find genes and proteins related to diseases and find their functions, it makes possible to develop drugs for the diseases. Bioresources such as experimental animals and cells of human and animal origin are indispensable for preliminary tests of the effects of drugs and treatments.

Discovery of new treatments

Recently, realization of regenerative medicine using iPS cells and ES cells is expected. Regenerative medicine is a treatment that restores tissues and organs and their functions that have been lost due to disease or injury. Using iPS cells and ES cells not only enables regenerative medicine, but also contribute to develop a treatment of intractable diseases and development of new drugs with fewer side effects. These have been attracting attention to bioresources because they are key to the realization of next-generation treatment after surgery and medication.

For healthy life

Microorganisms contribute to health promotion. Multiple researches are underway to discover and utilize the various functions of microorganisms. Enterobacteria have been reported to be closely associated with colorectal cancer, allergies, and obesity. Elucidating the functions of intestinal bacteria may help prevent diseases and aging. In addition, the results of prevention of obesity and dental caries using yogurt lactic acid bacteria have been patented.

To solve food problems

Due to population growth and climate change, food shortages are predicted in near future. If you can harvest enough amount of crops and make crops that are resistant to drought and warm weather, they may strongly contribute to solve the food problem. Previous studies have shown that crop properties are determined by genetic information. Therefore, research on the genes of experimental plants such as *Arabidopsis thaliana* is being conducted to find tips for breeding excellent crops.

To solve environmental problems

Active use of bioresources such as plants and microorganisms are hoped to solve environmental problems. Research is underway to produce fuel by fermenting rice straw and energy by dissolving garbage. Energy produced from plants and microorganisms is renewable and is hoped to help prevent global

To solve the mysteries of life

Bioresources are essential for solving the mysteries of life, such as elucidating the mechanism of human ontogeny and evolution. The mystery of life has been revealed one after another by reading and classifying meaningful information from a vast amount of genetic information or by examining the functions of genes in various model organisms. Bioresources have brought many discoveries so far

4. Bio-resources in library

A Green library, also known as a sustainable library, is a library built with environmental concerns in mind. Green libraries are a part of the larger green building movement. Libraries, particularly public libraries, are life long learning centers for people of all ages in local communities. Libraries are not only repositories of knowledge, but are also important information resources for raising awareness about environmental concerns. Green libraries educate the public about environmental issues through their collections, sustainable and environmentally friendly facilities, and public library programs. Among other things, green libraries maximize the effects of natural sun light and natural air flow; green libraries are thoughtfully designed while taking into account site selection to structural design, energy use, materials used and human health effects.

Material choice: The use of steady, alluring, and earth mindful structure materials is a vital element of any elite execution building exertion. The usage of normal and solid materials adds to the prosperity of the tenants and a sensation of association with the abundance of the regular world. Many structure materials have significant ecological impacts from toxin discharges, environmental obliteration, and exhaustion of regular assets. This will occur during the extraction and procurement of unrefined components, creation and assembling cycles, and transportation. Also, some development materials might hurt human wellbeing by uncovering laborers and building tenants to harmful and unsafe synthetics. Thusly, acknowledgment and determination of earth's best materials for use in development exercises at the pre-building stage present a chance to limit such natural and human wellbeing impacts. Choosing earth alluring materials with limited ecological effects are for the most part accomplished through the course of asset protection and choice of non- poisonous materials. The assets used to fabricate development materials influence the climate by draining regular assets, utilizing energy, and delivering poisons to the land, water, and environment. Materials that contain aggravating, foul, dangerous, or harmful components antagonistically sway humans in general wellbeing all through gassing of unpredictable parts or direct contact. Ideally, materials determinations can be made dependent on a thorough evaluation of natural weights all through the aggregate of the item or material. This interaction alluded to as ecological life-cycle appraisal, is once in a while attainable for most structure acquirement choices. It is conceivable, nonetheless, to apply life cycle thinking to assess what has had some familiarity with the natural exhibition of items and make shrewd choices.

A green rooftop: framework is an augmentation of the current rooftop which includes, at least, great waterproofing, root repellent framework, waste framework, channel material, a lightweight developing medium, and plants. Green rooftop frameworks might be particular, with waste layers, channel material, developing media, and plants previously ready in portable, regularly interlocking networks, or free laid/developed by which every part of the framework might be introduced independently. Green rooftops can be characterized as "contained" green space on top of a human-made construction. This green space could be beneath, at, or above grade, however in all cases, it exists separate from the beginning. Green rooftops can give a wide scope of public and private advantages and have been effectively introduced in nations throughout the planet

Rain water harvesting (RWH): is a course of gathering and putting away water that falls on a catchment surface (regularly a rooftop, albeit practically any outer surface could be appropriate) for use, autonomous from, or supplemental to the mains water supply. This decreases requests on the mains supply, offers some versatility from neighborhood supply issues, and diminishes the measure of energy utilized for water treatment and transportation. Assortment and redirection of surface run-off can likewise alleviate flood hazards and control waste as a feature of a supportable seepage framework (SuDS). Water collecting in structures includes innovation for its legitimate preparation, plan, establishment, activity, and support. Two significant extents of water reaping are (I) the utilization of water for every broadly useful and (II) re-energizing groundwater (4).

Green Paints: By and large, two to multiple times more contaminated than the air outside. Paint is an enormous contributing component to poor indoor air quality and can transmit hurtful synthetic compounds, like VOCs, for a long time after application. There are no kidding wellbeing and ecological worries encompassing paint. Utilizing paints that are liberated from Volatile Organic Compounds (VOCs) like benzene and toluene, liberated from substantial metals like lead or cadmium, or potentially made of post-customer reused content can help with lessening openness to poisons both for yourself as well as your current circumstance

Plants:

Plants can absorb and catabolize colorful poisonous substances that live in the terrain or also called phytoremediation, despite this capability is still not optimally employed as a medium for air sanctification in the room. The process of air sanctification by Plants has not been extensively known but in general, trends in the selection of Plants at houses are grounded on aesthetic considerations, continuity, and low conservation costs. Utmost of the named inner Plants are broadleaf species. Still, broadleaf Plants are a process of adaption to the terrain. One effect of adaption is the reduction of stomatal pores on the leaves therefore adulterants are only more attached to the leaves and aren't absorbed (7). Grounded on the National Aeronautics and Space Administration (NASA) exploration, indoor Plants can be useful as natural water-filtration that functions as pollutants of VOCs similar to formaldehyde, benzene, and trichloroethylene. Some exemplifications of indoor Plants published by NASA as shown below.

Inner shops as water filtering are recommended by the National Aeronautics and Space Administration (NASA) (1989)

Types of plants English ivy (*Hedera helix*), Green Spider plant (*Chlorophytum elatum*), Peace lily (*Spathiphyllum 'Mauna Loa'*), Chinese evergreen (*Aglaonema modestum*), Bamboo palm (*Chamaedorea seifrizii*), Variegated snake plant, mother-in-law's tongue (*Sansevieria trifasciata 'Laurentii'*), Heartleaf philodendron (*Philodendron cordatum*), Selloum philodendron (*Philodendron bipinnatifidum*), Elephant ear philodendron (*Philodendron domesticum*), Red-edged dracaena (*Dracaena marginata*), Cornstalk dracaena (*Dracaena fragrans 'Massangeana'*), Weeping fig (*Ficus benjamina*), Barberton daisy (*Gerbera jamesonii*), Florist's chrysanthemum (*Chrysanthemum morifolium*), Aloe vera (*Aloe vera*), Janet Craig (*Dracaena deremensis "Janet Craig"*), Warneckeii (*Dracaena deremensis "Warneckeii"*), Banana (*Musa oriana*).

Presently, the standard criteria for opting for indoor plants haven't yet been determined. Still, in recent decades, the use of inner plants as air sanctification media has entered a lot of attention and has been delved on a broad scale. Tests of the effectiveness of inner plants as air cleaners innovated by NASA revealed that shops have the capability in reducing situations of adulterants in the room.

There are so many other bio resources which may be utilized in any library for the betterment of the library service and make pollution free service to the community. Paper books is biodegradable so library authority should concentrate in paper books . library furniture should be made of wood , plastic furniture is not biodegradable so this type of furniture should be avoided. Solar electricity should be utilized in library premises as it does not create any pollution to the environment where as thermal electric is generated, creating pollution. Due to green house effect in the earth , every country is concern about the pollution , so this is high time for the library of use pollution free equipment or material in the library.

Herbs are natural products and their chemical composition varies depending on several factors and therefore varying from people to people, from energetic decoctions to the use of herbal extracts following Western methodologies of mainstream medicine. In every country traditional medicines find foundation in magical or religious beliefs, or popular experience and the World Health Organization is engaged to establish definitive guidelines for methodology of clinical research and the appraisal of effectiveness of traditional medicine. India has ancient traditional science like Ayurveda and many cultural medicine too. So its need of time to utilize these natural Bio-resources in health sector.

5. Conclusion

Pollution is increasing day by day as a result new generation can not be survived freely on the earth. So this is high time to think for bio-resources or green energy. Library can be established in a way so that it would not harm the society. India has richest area of plants, so there is an urgent need to establish the traditional bio-resources value in both national & international perspective realizing the ongoing development trend.

References

1. Subhashita Ratna Bhandagara, kashinath Sharma (2010) Niketan publication, 2nd edition 207pp.
2. Ameenah Gurib Fakim (2014) Novel Plant Bioresources Applications in Food Medicine and Cosmetics, Wiley Blackwell 552pp.
3. Bioresources (2017) Bio Resource Innovation BRI
4. Mohammad J Taherzadeh, Ashok Pandey, Rainer Hofer, Christian Larroche (2015) Industrial Bio refineries and white biotechnology. Elsevier.
5. History of Indian healing traditions (2017) Science and Society.

