



## BIODIVERSITY STUDY OF KANAKAMAJALU

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**Synopsis**— Increasing exploitation of bioresources has imbalanced nature and its biodiversity. Once the rare species become extinct, then even today's high end technologies will not be able to save them. Hence, whatever we are left with, we need to preserve and prevent them from getting extinct. Karnataka Biodiversity Board (KBB), under Government of Karnataka is documenting the local biodiversity of every gram panchayat under the project 'Peoples Biodiversity Register'. It is an innovative project and a unique opportunity for teachers and students of life sciences to study the local biodiversity and document as per the PBR guidelines.

Kanakamajalu is a small village Gram Panchayat in Sullia taluk in Mangalore District. It is named so due to the abundant golden paddy grown in Kanakamajalu. Biodiversity study of Kanakamajalu gram panchayat is the part of KBB project. This study has helped to know local flora and fauna with new species of medicinal properties. Many traditional knowledge holders in agriculture, horticulture, pisciculture, and forestry are studied. Common and wild flora and fauna are also included. Nati vaidyas both for human and livestock, hakims who prepare traditional medicines are identified. Padhe huvu and padhe mulu were the two unique medicinal plants of this area. Pernal padhe, Muger Gudda and Nishani Gudde are the common tourist places holds ancient interesting history. Many old people are the best resources for traditional knowledge regarding rare species. This study helped to know the complete biodiversity of Kanakamajalu, based on the information given by the local people.

**Keywords**— Kanakamajalu, Karnataka Biodiversity Board.

### INTRODUCTION

Earth is a mother of all resources. All living beings have a right to utilize these resources. Each one of them have their unique importance contributing to biodiversity especially in western Ghats. But indiscriminate use of the resources is disturbing the nature by unbalancing the demand and supply of bioresources. Mahatma Gandhi says 'Nature has everything to satisfy our needs but not

greeds.' We are dependent on nature for food, water, shelter, clothing, medicines and even fuel. To restore the resources, there should be equal "give and take" strategy between us. But this is not the fact. Hence, many resources are disappearing. In the days to come, rare species can be seen only in the picture. There are plenty of unidentified and misidentified species of which many are getting extinct. Any species once lost, cannot be recovered even by today's high end technologies. Hence, there is a need to restore, preserve and cultivate rare species. Thereby, it is necessary to document them before they get extinct. It will help to know to which part it belongs originally.

UN General Assembly has adopted 22<sup>nd</sup> May every year as the 'International Day for Biological Diversity '(IDB). The theme for IDB in 2016 is '**Mainstreaming Biodiversity: Sustainable people and their livelihood.**' Biodiversity and Ecosystem Services it supports, is the foundation for livelihoods and sustainable development in all areas including economic sectors such as Agriculture, Forest, Fisheries and Sustainable Tourism. To create awareness and implement the rules and regulations of biodiversity, Karnataka Biodiversity board (KBB) was established by Karnataka Government in 2003 under Biological Diversity Act 2002. It aims towards the conservation and documentation of biodiversity. (123)

Biodiversity study of Kanakamajalu gram panchayat is the part of KBB project where data is collected about the area, peoplescape, landscape, soil type, water resources, livelihood, population, mainly the flora and fauna. This biodiversity study of Kanakamajalu has brought out unique plant species of this area and sacred groves too. Once documented, the resources will be known to all consequently, preventive & sustainable preservative measures can be taken mainly for the species which are about to extinct.

### WORK METHODOLOGY

Karnataka has rich biodiversity. This diverse biodiversity should be documented and conserved to



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maintain the healthy balance in the environment and for sustainable livelihood. To document and conserve each and every species is the motto of '**Biodiversity Study**'. Karnataka Biodiversity Board (KBB) is carrying out this huge task from 'Gram Panchayat' level in the form of Peoples Biodiversity Register (PBR). PBR is prepared with the help of Biodiversity Management committee (BMC) formed by the local gram panchayat members as per the guidelines of KBB.

Preparation of PBR is an opportunity for teachers especially of Life sciences or bioscience domain, who can identify and document the biodiversity data in a scientific manner. KBB provides financial support to every team for the PBR work of every 'Gram Panchayat'. As a team, one teacher can select 3 efficient students for PBR work and visit the Gram panchayat or taluk Panchayat to from BMC and complete PBR work with the help of local people. PBR is divided into mainly three parts viz. Part-I comprising the guidelines to form BMC and its authentication, acknowledgement of the work, Maps, annexure, the biological Diversity Act, rules and regulations, PBR guidelines etc. Part-II is the main document of PBR. It includes 25 formats giving the details of local biodiversity. Part- III of PBR consists of local area and information about natural resources.

Kanakamajalu is a small village Gram Panchayat in Sullia taluk, in Mangalore District. It has a geographical area of 720.50 hector. Since it comes under costal area there is good rain fall. The main tourist places in kanakamajalu are Pernal padhe, Muger Gudda and Nishani Gudde with rich flora and fauna. The village Kanakamajalu is named so as in the olden days there was abundant paddy harvest which looked like golden crop. This village is very rich with agricultural products. Coconut, areca nut, cocoa are the main commercial crops of this area. The area has few small scale industries like cashew and soft drink industries.

PBR preparation of Kanakamajalu was very interesting project for our team. This survey was a sort of field visit which helped the students to know people, places and variety of species and their uniqueness. The available herbs and medicinal plants, agriculture, horticulture, pisciculture, insects, pests, weeds, ornamental plants, timber were observed and documented as per the formats given in the PBR. Also, very useful information on the medicinal plants unique to this area was obtained. Many plants gain

the medicinal value only in certain seasons and few days of the year.

KBB insists to identify the traditional knowledge holders, nati vaidyas, who give traditional medicine as their family business but not known to many others. Also, hakims, traditional health care practitioners (human and livestock) residing or using biological resources from the village are focused in the study. Such people were not willing to give the information about the rare medicinal plants and did not disclose their secret. They have the fear of getting these medicinal plants being misused by others. Few people who prepare the traditional medicine at home and cure the health ailments of people, do not like to register and make it as a open business due to the commercial taxes. Senior citizens of the village were the best resources to give the valuable information about traditional medicines and certain traditions that help in preventing the ailments, if followed. Traditional knowledge holders related to biodiversity in agriculture, fisheries and forestry were the resourceful people regarding many species.

## RESULT AND DISCUSSION

The biodiversity was documented meticulously. It was a huge task. It needs the proper resources and experts for the scientific identification of species. To give the details of complete biodiversity of Kanakamajalu study is out of the scope of this paper. Hence, the summary of all types studies is mentioned herewith. There are total 25 formats as the PBR which are mainly focused on the biodiversity in agriculture, horticulture, fisheries and forestry. For crop, fruit plant, fodder, weed, pests of crop, medicinal plants, ornamental plants and timber, all the information regarding its local name, scientific name, habitat, past and present status, wild or home grown, main use, other uses, associated traditional knowledge holders etc. was collected from the local people of Kanakamajalu. Out of this survey there were 36 crop plants, 13 fruit plants, 4 fodder crops, 11 weeds, 13 pests of crop, 17 medicinal plants, 8 ornamental plants, 15 timber bamboo, cane plants were identified.<sup>(4)</sup>

In the format 13, among the 8 domesticated animals found in Kanakamajalu, information was collected about their type, local name, scientific name, breed, features, method of keeping, past and present local status, uses, associated knowledge, commercial rearing, their products, community or knowledge holders. Format 14 has the information regarding the markets or fairs for domesticated



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animals where local breeds were observed. Any breed of high economic importance is of use for dairy, animal husbandry or livestock. Format 15 specifies about the market and fairs for medicinal and other plants. Such specific markets are good to study the local unique plants of high medicinal importance. In Kanakamajalu there was no such separate market but in the weekly vegetable market but the saplings of medicinal plants were also brought for sale. Among them Aloe Vera, brahmi leaves, vitamin plant leaves were commonly found.

The details of wild biodiversity is given in the format 16 that includes trees, shrubs, herbs, tubers, grasses and climbers of wild variety. Here, apart from the features studies for common and medicinal plants, the habit and habitat was mentioned. Any specific part of the wild plant used for medicinal purpose was studied. In the wild flora 34 different types were studied.

In the format 17 of local fauna, mammals, birds, reptiles, amphibians, insects and other types were studied. There were 100 different species observed under Local fauna. There were 28 wild medicinal plants observed documented in the format 18 of PBR. Where apart from the other common features, variety of the plant is studied and traditional knowledge holder about its uses is specified.

During this study, we came across two unique plants of medicinal importance of this area. Those are 'Padu Huvu' (Padhe means rock or stone and Huvu means flower in local language)-a flower that grows on the rocks and 'Padhe mullu' (mullu means thorn growing on stone). Padhe huvu is mainly also known as 'Purushratna' and it is known by other names like-Amburuha, Charati, Ekpatri or Sathala Mooli. It's botanical name is *Hybanthus enneaspermus*. It's leaves are used as aphrodisiac and demulcent. It's roots are used as diuretic, for asthma, urinary tract infections, impotency, gonorrhea, leucorrhoea diarrhea, bowel complaints, coryza, dysuria, syphilis. It is a main ingredient for a medicine of impotency.

Padhe mullu is a short thorny plant. It is commonly known as padhe poo or padhe mullu. It's scientific name is *Polycarpea corymbosa*. It is a short erect herb 12-40 cm high. Leaves are linear, verticillate, 1-2 cm x 2-3 mm small flowers. Leaves are used as medicine for boils, epilepsy. Roots are used for Jaundice and liver diseases. Whole plant is used to treat the wound and swelling. Plant is used for both internal consumption and applied externally as remedy for snake bite. Pounded leaves

are used as poultice over boils and inflammatory swellings. It is given with molasses in jaundice. The flowering head and long stem and leaves are used as demulcent and astringent<sup>(6)</sup>. As per the local tradition padhe huvu and padhe mullu are used in diwali festival.<sup>(5,6,7)</sup>

Among the wild relatives of crop, 4 species were entered in the format 19. Ornamental plants are also of economic importance. We could find 31 ornamental plants in Kanakamajalu area. The variety, habitat, commercial uses and associated knowledge about the ornamental plants is mentioned in the format 20. There were three fumigating and chewing plants in the next format. There were 17 timber plants documented in the format 22. Aquatic biodiversity studied is enlisted in the formats 23 to 25. The fauna includes 50 species comprising of fish, crab, snake, insects etc.<sup>(7,8,9,10,11)</sup> Their habit and habitat, mode of catching fish, time of availability and breeding time is mentioned in this format. Four species were found in aquatic flora. Under the culture fisheries, four types of fish were observed. There are chances that the actual biodiversity may be wider than this data as the it is based on the information given by the local people.<sup>(12,13,14,15)</sup>

In the biodiversity study, the maximum data collection on the available resources of the local area relies on the proper sensitization of local population, organizations and social groups, probably many times. Good motivation of local people with focused discussion on their published detailed information is necessary to extract the minute details. The information and importance of the local valuable resources should be made known to local people with help of gram panchayat. Photographs, audio or video recording also helps the documentation process to complete soon. Large number of teachers and students should come forward and join this PBR project, to study local biodiversity and document it. It will help to complete the documentation of Karnataka biodiversity at a faster pace.<sup>(12,13,14,15)</sup>

Once the people biodiversity Register is completed, it needs to be assessed by the technical support group members of the concerned field. Later, it should be updated regularly by Gram panchayat as and when new information on the local biodiversity is noticed. Hence, PBR has helped to authenticate the biodiversity of Kanakamajalu.

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