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A Contribution to the Ethnobotany of Jamboni Block with Special Reference to Resource Mobilization in Lateritic Southwest Bengal, India

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Abstract: *The present study reflects the explored diversity of usable plants and Indigenous Traditional Knowledge pertaining to conservation of plants by the tribal people of Jamboni Block of Jhargram Sub-Division, Paschim Medinipur, West Bengal. A total of 85 plant species from different sites in the same Block have been enumerated. The economically important plants belonging to 32 families were recorded which were variable in number and composition in the plant community with the alternation of seasons. The most dominant plant species found was dry deciduous sal (Shorea robusta), which was almost used as varied species due to versatile importance. A fruit, flowers, leaves; barks and corms including timber and litters are found and frequently used over the area. Almost all plant materials were used day by day to solve the local problems since time immemorial. Medicinal plants available in the forest but they use a little bit of medicinal plants for the remedy of ailments though they use the medicinal plants for their use to cure ailments for cattle. Some are used as gastrointestinal purpose of the cattle in the same community. As the long term use of plants differs so that the community needs conservation scenario locally. Some houses conserve fruits of economic type for their use or for sale in the market to earn money. The modes and conservation scenario of plants or stored materials are uncommon because they use the local techniques as well as the techniques developed and modified by forest personals. The only reason is that the people naturally involved in the Forest Department as beneficiary members through Forest Protection Committee (FPC) in the same territory.*

Keywords*: Ethnobotany-Jamboni-Plant Resource and management-Indigenous Knowledge.*

I. Introduction

Ethnobotany is specifically referred as a botany which deals with ethnic people in a habitat along with the relationship of plant. As a whole, the ethnic people of forest areas use plants and plant related products for their livelihood from forest and degraded forest which have great ecological significance. The soul of ethnobotany is primarily and intrinsically the knowledge of the indigenous/local people acquired through oral tradition or personal observations and experience about plants of their own region. Therefore, the study of ethnobotany from the past to present makes avenues of path-breaking research in the subject like Botany and its future is infinite, though finite line is clear that provokes the ultimate goal of the society. As for example the work like Ethnobotany of India was conducted by Botanical Survey of India time to time through All India Co-ordinated Project on Ethnobotany. It emphasized the community based ethnic study with the aid of Botany. The study broadcasts the use and paradox of conservation through the ethnic tribes of a specific area. The present study area is confined at Jamboni community development Block of Paschim Medinipur District in West Bengal State. The area is lateritic belt filled with dry deciduous natural and degraded *sal* (*Shorea robusta* Gaertn. f.) vegetation. Other dominant plants in ecological series in the said area are *Cleistanthus colinus* (Parasi) and *Croton oblongifolius* (Kamala). Here, plants are mainly deciduous and vegetation is under coppice *sal* along with *piyal* (*Buchanania lanzan* Spreng.), *Rakta Rahara* (*Soymida febrifusa* Adr. Juss.) and *Mahul* (*Madhuca indica* J. F. Gmel.).

II. Area Under Study

The study sites are the forest dominated villages of Jamboni Community development block of Jhargram sub-division, Paschim Medinipur, West Bengal, India. The study site as a whole is bounded by Purba Singhbhum district of Jharkhand state in the west and in the other sides bounded by 3 community development blocks of Jhargram sub-division. The uniqueness of the site is lateritic forest with high percentage of ethnic groups with large land mass like degraded land of forest as well as natural forest. Only the river 'dulong' is flowing through the landmass with great ecological significance. The rail tract south-eastern route is passes through the block as Kharagpur Nagpur route in Indian sub-continent. Landmass is forest, cultivable, open, shrubberies and fallow land. Main crop is rice though some forest area provided with 'tassar and lac' cultivation under different directorates of Govt. of West Bengal with good economic backup. Forest land is lateritic PAN type with dominated *sal* (*Shorea* sp.), *piyal* (*Buchanania* sp.), *karam* (*Adina* sp.), *piyasal* (*Pterocarpus* sp.) and

kumbhi (*Carya* sp.). Lower land mass in basin area of river is undulated filled with hedges and sedges that gives more profit to the local community round the year. They use sand, stone, gravels, morums etc. from the landmass with potential economic facility. Plantation in semi-urban and rural areas are due to extension work of forest department as well for the work of horticulture to spread the cover of vegetation and check the soil loss from the land mass as a whole.

III. Review Of Literature

A few numbers of perusal literatures are found in the Jamboni area but from adjoining areas of lateritic south west Bengal, a good number of works have been made. The works of some authors made contributions to the vegetation of lateritic west Bengal which is cognitive and regarded as the raw source of study. Authors like Das (2007, 2009), Ghosh (2014a), Das and Ghosh (2014b), Ghosh and Das (2014c) have made contributions to enrich the knowledge on vegetation and similar ecological status, NTFPS versus ethnobotany study in the same area time to time. Mitra and Mukherjee (2010) studied Ethnobotanical Usages of some wild plants of North Bengal Plains for Gastro-intestinal problems which is similar but applicable in case of quadrupeds in areas like south west Bengal. The theme is traditional knowledge and may be applicable in West Bengal as well in other states of the Country (Ripunjjoy, 2013). The knowledge of sacred groves is also a structure which may be used to conserve the species in- situ condition. No such actual data is available so there is a scope to study the sacred groves in the same site for conservation of species.

IV. Materials And Methods

Intensive field studies were conducted in natural forest, degraded land and plantation stands of Jamboni areas. The dominated 'Santal inhabited villages' *viz*. Sangram, Charchaka, Gidni, Jamboni, etc. were studied extensively during 2013-2014 and onwards. Collected data was taken through extensive personal interviews, crucial deep and intelligent discussions with the help of students from nearby schools, colleges and participation of older persons through observation method. Random collections of plant specimens as well as dry plant materials were collected through extensive field survey in the tribal villages with some knowledgeable persons. In the laboratory, the specimens were soaked in 100 mL of 95% ethanol-phenol (60:40) and subsequently oven-dried (Lavoie, 2013). Properly oven-dried specimens were mounted in herbarium sheets with specimen labels. Identification of specimens was made with the help of floras (Prain, 1963; Anonymous, 2005; 2010a, 2010b; etc.). Name changes against specimens were conformed to the help of Bennet (1987). Frequent visit to the CNH, BSI was done to study the hebarium as ready referenece as and when required. Herbarium specimens were submitted to the Botany Department of Sevabharati Mahavidyalaya, Kapgari, West Bengal under the affiliated University, Vidyasagar University, Midnapore, West Bengal for preservation. For alkaloid contents, results from the alkaloid field survey of Aguinaldo *et al*. and Guevara (Aguinaldo, 1984; Guevera, 2004) were cited in this study for conformity of some specimens. Diversity and distribution pattern study was made as per the reference of Pielu (1966), Simpson (1949), Sorensen (1948) and followed by Whittaker (1972).

V. Results And Discussion

The present study is an attempt which has been made to explore the diversity of usable plants and Indigenous Traditional Knowledge pertaining to conservation of plants by the tribal people of Jamboni Block of Jhargram Sub-Division, Paschim Medinipur, West Bengal. A total of 85 plant species of economic importance belonging to 32 families were recorded. The most dominant plant species found was dry deciduous *sal* (**Shorea robusta**), which was almost used as varied species due to versatile importance. A fruit, flowers, leaves; barks and corms including timber and litters are found and frequently used over the area. Almost all plant materials were used day by day to solve the local problems since time immemorial. Medicinal plants available in the forest but they use a little bit of medicinal plants for the remedy of ailments though they use the medicinal plants for their use to cure ailments for cattle. As the long term use of plants differs so that the community needs conservation scenario locally and departmentally to conserve species. In their premises the local people use alternate cropping of corm and agricultural plants to some extent but in the agricultural land they use forest species of economic type which are multi-rotational. Some houses conserve fruits of economic type like *Spondias, Tamarindus, Moringa, Schleichera, Moringa* etc. The modes and conservation scenario of plants are uncommon because they use the local techniques as well as the techniques developed and modified by forest personals. The only reason is that the people naturally involved in the Forest Department as beneficiary member through Forest Protection Committee (FPC). The plants cover entire the area with 2-3 layered canopies along with some epiphytes and parasites. Gradually the lower layer is filled with shrubby vegetation and the ground cove is filled with small patches of herbs but mostly the ground is barren where the pattern of the parent material is red Murom and abundant bolder (red lateritic PAN formation). Plantation stands cover Eucalyptus and Acacias (*Eucalyptus* sp., *Acacia auriculoformis* and *A. mangium*) in a large scale with no ground cover except a few dense patches of *Chromolaena odorata* and *Lantana camara* as exotic alien species. These two

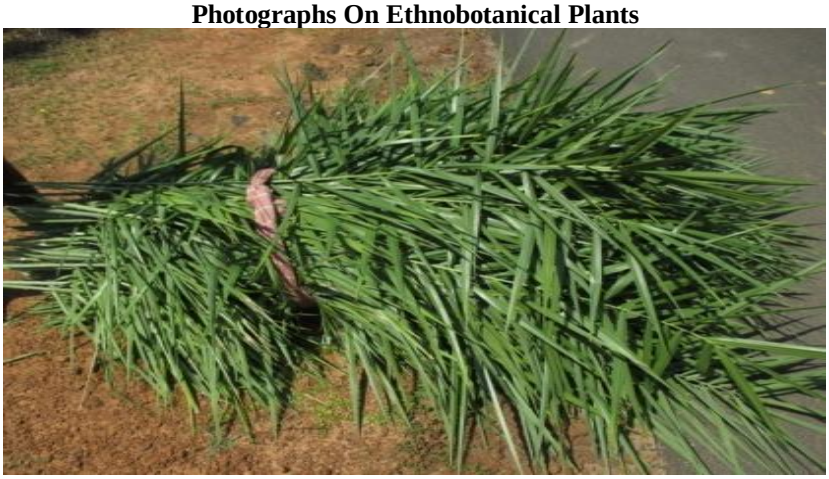
alien species are fuel wood producing species for the people where no boundaries of forest department to fell the plants round the year. In some sites of social forestry area the very poor reference of dense sal and kendu (*Diospyros* sp.) plant as the sites are degraded and complete cover by small buildings or earthen hut after modification of land pattern as and when required. The house hold members collect litter from forest and degrading land of own village where they planted *Anacrdium occidentale* (Cashew) and *Ailanthus excelsa* in a large scale. Some sites of the village they planted Mahogany (*Swietenia* spp.) and Lamboo (*Dysoxylum* sp.) for quality wood production and for the Non Timber Forest Produces (NTFPs). So, there is a large scope of NTFPs production which is potentially important as these having good economic value. During monsoon, some ephemeral plants grow there but the abundance of the species is very low. Creepers like *Asparagus racemosus, Ipomoea hastata, Ichnocarpus frutescens, Hemidesmus indicus,* and *Smilax ovalifolia* grow there with moderately high frequency rate but do not spread heavily by the propagation. A less degree of decomposition is observed is due to irregular raining and high degree of soil erosion by high rate of grazing there, that prone to more degradation of land. Seedling establishment and advent growth rate is slow to slower that can spread the vegetation heterogeneous in distribution. Another cause is due to less deposition of organic matter even high erosion by annual water runoff during monsoon. So, pattern of distribution is mainly heterogeneous type where dominant and co-dominants are abruptly coherent. Here species like *Shorea robusta* (Seddlings to saplings), *Anogeissus latifolia, Madhuca indica, Buchanaina lanzan, Zizyphus mauritiana, Gardenia latifolia, Semecarpus anacardium, Terminalia bellerica, T. chebula, Polyalthia cerasoides, Haldinia cordifolia, Ailanthus excela, Oroxylum indicum* etc. Shrubby vegetation composition is dominated by *Cleistanthus collinus, Mimusa rubricaulis, Meyna laxiflora, Gardenia resinifera, Gardenia gummifera, Combretum decundrum* and *Flacourtia ramontchii*. Herbaceous plant species available here are *Atylosia scarabeoides, Evolvulus nummularius, Sessiolepis sp., Aristida adcendeonoides, Aristolochia indica, Ochna perpussilla, Dicliptera bupleuroides, Ageratum conyzoides, Vernonia cinerera*, etc. Some woody climbers found here are *Ampelocissus latifolia, Dalbergia scandens, Bauhinia vahlii, Butea suberosa, Hemidesmus indicus, Celastrus paniculatus, Combretum decundrum, Butea spathacea, Ichnocarpus frutescens, Tiliacora racemosa* etc. Leafless parasites like *Cuscuta* and *Cassytha* are also available in the degraded forest and even at the margin of the forest with low intensity. Some plants grow near the forests which are planted by forest department as avenue. These grow better along the roadside as avenue and ornamental therefore people become more interested to grow them. These are *Tabebuia roseoalba* (white trumpet tree), *T. impetiginosa* (pink trumpet tree), *T. serratifolia* (Yellow trumpet tree), *Delonix regia, Peltophorum ferruginosum and Caesalpinia pulcherrima* etc. Plants are the main source of fuel wood, litters, medicine, food and vegetables, cushion, pillows, ropes, fibres, tooth brush, shelter, fodder for domesticated animals, and for aesthetic purpose. Primary occupation of the villagers is cultivation of rice in a small land nearby forest. Other works they perform are as wage labour, small business, service and collection of different NTFPs from forest time to time for direct use or indirectly to earn money from market. Therefore, forest is the main source of livelihood of the ethnic and non-ethnic villagers. Some ethnic people are engaged in hunting and collection of green *sal* leaves as well as twigs from the forest for their income generation. They collect mushroom during post monsoon from forest and from river side jungles (Dulong River) and sale these articles in local market.

VI. Summary And Conclusion

Ethnobotany study is a multidimensional study which need complete knowledge from different corners because it includes societal need and replacement of resource through Indigenous traditional knowledge (ITK). The resources of the remote villages are not enough as the rate of demand is high due to over population including land and resource degradation in connection with bad management. Not only that it focuses on medicinal plants and the economy of the society as it concerned with policy context for recent development in backward areas of India. In recent years several policies of the national level refer to promotion of conservation and sustainable use of medicinal plants and associated traditional knowledge. So, knowledge based local economy is developing and modifying the uniqueness of the development. Therefore, block level up-liftmen of society going on to generate habitat based knowledge to earn money and trial based profit using different resources in the same area. The rural villages of forested lands is so neglected that it need recovery of poverty line and therefore the effort should be generated through people by the use of external intervention. The planning commission, Govt. of India has recognised medicinal products and herbal products as key area for national focus. Therefore, there is an emerging policy support at the national and international levels for the medicinal plants and traditional knowledge sectors. As it is multidimensional it needs societal support from grass root level. Therefore, a kith and kin relationship is to be provided from the micro level sectors who have been appointed as a source point to provide all the resources and formulations to set a better function in the same environment. This is evident from a review of various policies and programme of different ministries of the GOI and international agencies (Anonymous, 2010a). This supports the conservation strategies of plants as bio resources over the globe. The National Biodiversity Strategy and Action Plan (NBSAP), Govt. of India,

supported by the MoEF and UNDP, has underlined the need for both in-situ and ex-situ conservation of medicinal plant resources given their common social, cultural and economic role and potential. The last but not least is the policy related to study of threatened species in a micro-level study and rooting the guideline to protect and preserve via traditional knowledge in the same habitat. The present context is fit with the relation of use and conservation paradox in the territory of ethnic groups with varied cultural practice from time immemorial. This also related to other types of study as it is the interdisciplinary work which has its potential usage to diversify the field of study. Literature revealed the scope and objectives that can fortify the goal which having true eccentric significance with the relevant applications and later on sound economic strategy of development. The work of some scattered literature showed the indigenous knowledge system for the conservation of plants and their use particularly medicinal use. On that way the diversity of IKS pertaining to utilization of medicinal plants was derived from the Sonowal Kachari tribe of Dibrugarh district in Assam, North East India as an example. Here author collected data through extensive personal interviews, in-depth discussions and participant observation method through a serious time consuming survey (Ripunjjoy, 2013). The study includes the study of agrisilviculture or silvipasture system. The systems can solve the present problems. The value of the system is multi-dimensional as it provides food, fuel wood, timber, NTFPs, fibres, flosses, medicinal parts of plants, and renders the positivity of soil moisture and also ameliorates the harsh climatic condition. The land masses become fertile and generate grasses and legumes along with short statures bushes that can provide the fodder for cattle. All the knowledge based system derived from age-old persons who have vast knowledge and received the same from forefather generation after generations. The present study broadcasts the same knowledge system about the ethnobotany of plants including the source and sink relationship thereby. From ecological view point, the study therefore would fulfil the remedial measures to postpone the ecological degradation and threat of sustenance in near future. So, more research and progressive studies should be incorporated soon to qualify the problems and demand on need based ecosystem in near future.

Photographs On Ethnobotanical Plants



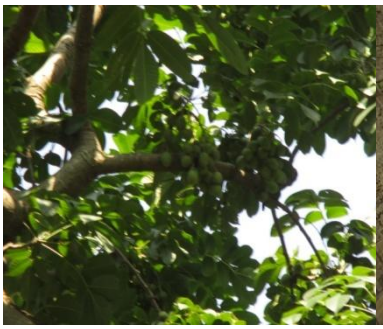
1. Marketed Khejur leaf- (**Phoenix acaualis**) of forest

2. Medicinal Plant ‘Talamuli’ (**Curculigo orchioides**) in wild

3. Kash (**Imperata cylindrica**) along the river 'Dulong' after October



4. Ulatchandal (*Gloriosa superba*), 5. Kalillat (*Ichnocarpus frutescens*), 6. Woman carrying fuel wood species



7. Amara (**Spondias dulce**), 8. Bakharbati (Haria tablet), 9. Atta (**Annona squamosa**)



10. Author collecting information, 11. Chatai (**Phoenix sylvestris**), 12. Ool (**Amorphophallus sylvatica**),



13. Haldi (**Curcuma aromatic**), 14. House of Santal community, 15. **Sensevierica cylindrica**

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