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Documentation on Wild Edible Plants of Sohmynting Village, West Jaintia Hills District Meghalaya, Northeast India

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ABSTRACT

Sohmynting village is located in Thadlaskein subdivision, Elaka Amwi daloiship, West Jaintia Hills district, Meghalaya, India. From time of immemorial Sohmynting was inhabitant by different clans from different places of the state. The people had a common practice of collecting wild edibles plants, depending on their availability either seasonally or throughout the year. The information about several plants was recorded through interviews with the local respondents who had the good knowledge about the plants. The present study revealed that about 35 wild plant species belonging to 25 genera comprising 19 families were used as sources of food variety by the people of Sohmynting village. Herbs were mostly used as wild edible plants followed by shrubs, trees and climbers. The parts mostly used were leaves, followed by Flowers, leaves &stem and whole plant respectively, fruit & leaves. Other combinations viz. Fruit, Flower & Stem and Flower & Fruit were also used in few species. Indigenous knowledge about food systems are a good way to deal with the climate crisis

Keywords: Wild edible plants, Sohmynting, Jaintia, indigenous knowledge

INTRODUCTION

Even though the primary dependence of societies on agricultural crop plants, the traditional of consuming wild plants has not been eliminated (Pardo-De-Santayana et al., 2005). Wild edible plants locally are known as "Jhur khlo, Jhur = Vegetables, Khlo = jungle" meaning those plants which are uncultivated plant species and collected from their natural habitat and are being used as a source of indigenous food and nutrition. These plants received vast consequence at various places and times of the human history given their capacity to supply the need for nourishment during the experiencing of food shortages in different region (Pinela et al., 2017). Wild plants are also known to be used since time of immemorial for different purposes, such as food, medicines, production of goods and religious rituals. In particular, the use of wild edible plants mainly linked to primitive periods where there is no modern agriculture food is available in the region (Ceccanti et al., 2018). They play a significant role in complementing the global food basket especially in rural areas. The use of wild plant resources has been an integral part of cultural, religious and health aspect of numerous indigenous and rural communities across the globe (Doni and Gajurel, 2020). The diversity in wild species offers variety in family diet and contributes to household food security (Balemie and Kebebew, 2006). In developing countries various types of wild edible plants are consumed as sources of indigenous food, due to the sharp increase in population, scarcity of fertile land for agriculture and high prices of available staples, some people frequently collect wild edible plants and other plants from natural habitats to meet their adequate level of nutrition (Seal et al,2017). In India, the tribal people depend on forests for their livelihood. The tribal people are very close to nature and have hereditary traditional knowledge of consuming wild plants and plant parts viz. tuber, shoots, leaves, fruits etc. as a source of food (Niveditha, 2017). Many of wild edible plants have been used as indigenous food by rural people living in and around the forest areas and the diversity of wild plants species offer food diet, food security and also contribute to household in generation of income by selling in the local markets (Sawian et al., 2007 and Khan et al., 2015). Wild edible plants are well known beings used for food, shelter, cloth and need medicines by human (Langshiang et al., 2020).

Hence, it is necessary to collect indigenous knowledge (IK) of tribal and rural communities in different parts of India before it's lost permanently. Recently various wild edible plants studies have been reported to reveal the indigenous knowledge from the different tribal groups of India (Debnath et al., 2014). Every indigenous community seems to hold their usual knowledge of wild edible plants ranging from herbs to trees. Such indigenous identity of the particular community is derived due to the immemorial association with their floral and faunal environment. This kind of association has led to the usage of plants for food, fodder and medicinal purpose (Deb et al., 2016 and Langshiang et al., 2020). Therefore, the present study aim to collect and documented the indigenous knowledge about the wild edible plants and their utilization by the People of Sohmynting village.

METHODOLOGY

Study Site

Sohmynting village is located in Thadlaskein subdivision, Elaka Amwi daloiship, West Jaintia Hills district, Meghalaya, India. It is situated 20km away from sub-district headquarter Thadlaskein (tehsildar office) and 10km away from district headquarter Jowai town and. Its lie on 92°7'48.21"E Latitude and 25°26'55.02"N Longitude and Area covered with 34.53 sq km. The village comprising boundary with the land mark seeing that, from North: Mynkoi- U-Lum,Wahtyr-a and Ryngkangkhla. South: Ummuchai, Wahlakyndang, khlosyrpad and phyllut. West:Wahumngot and East: Wahmyngkjai, wahmyntnger, wahradhoh, kutkasem, mot moojainspong, khlo pnon, umyengkhoi and mot moowapung. Sohmynting village indicated as one of the oldest villages in the district by the present of Monoliths, Costmary they followed and the three sacred groves in and around of the village which belong to this respective clan that is Pyrtuh, Kyndait and Langshiang & Mukhim. The land properties on this village fall under the category i.e., Village or Community land and private land. For those people who has not own any plot of land, the Dorbar Shnong (village council) has to decide to give them a plot of land for them to construct their house by the in charge of Rangbah Shnong (Village Headman). One of the finesse relationship of the people of this village was the mutual building society, that is mean even the properties (fuel wood, timber wood, sand, stone and water) were belong to private, but no one can stop the others to extract this properties for his or her own used. From time of immemorial Sohmynting was inhabitant by different clans from different places of the state and they select the headman to lead the village from the Pyrtuh clan without any kind of election mode as they believe the Pyrtuh clan is the oldest and the first clan to inhabit the village. In 2015 the Jaintia Hills Autonomous District Council (JHADC) was enacted the "Jaintia Hills Autonomous District (Establishment of Elaka and Village and Election, Appointment, Powers, Functions and Jurisdiction of Daloi/Sirdar and Waheh Shnong) Act", the selection of headman from Pyrtuh clan alone was abolished.

The first Election for the headman of this village was held on 13rd September 2019. There are (739) households residing in the village and it has a total population of 4691 of which (2352) were males while (2339) females as per the 2021 yearly census of the village. The main occupation of the people is agriculture. Apart from agriculture, the people also had a common practice of collecting wild edibles plants, depending on their availability either seasonally or throughout the year. There were many types of wild edibles plants are found in Sohmynting village and it surrounding which the villagers were utilising as vegetable in their kitchen. The main objective of this study was to assess and identify the wild edible plant's variety and the utilisation of wild edibles plants in the village. The study will aim to record the wild edibles plants found in the area, and it will also act as a source of awareness for people who might have no information about how valuable of these resources are for the community.

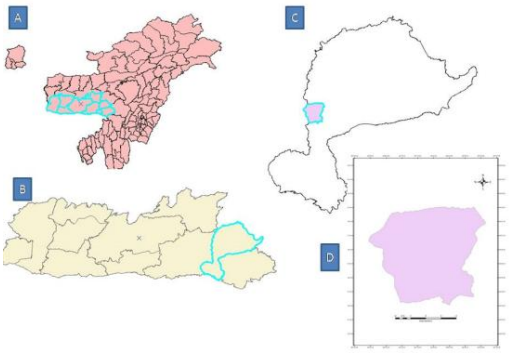

Fig. 1-(a) Meghalaya in the state map of North East India; (b) District map of Meghalaya (c) West Jaintia Hill district Map and (d) Sohmynting with visited sites

Data Collection

Studies were carried out during the month of February 2021 to February 2022 in Sohmynting of West Jaintia Hills District. The information about several plants was recorded through interviews with the local respondents who had the good knowledge about the plants. The respondents were aged people (>65) permanently residing in the study area, who were willing to share their information, gathered by virtue of experience and knowledge. The details of the plants, about their vernacular names, parts used, were recorded. During the survey, necessary specimens and photographs were collected to ensure proper species identification. The correct identification for scientific names was determined with the help of existing key books viz. Flora of Tripura (Deb, 1981 and 1983), Flora of Assam (Kanjilal et al., 1939 and 1940) various e-floras portal.

Statistical Analysis

The collected data were represented systematically in the MS Excel sheet. The information such as botanical name, local name, family, parts used, and ethno medicinal uses were attributed to each species.

RESULTS AND DISCUSSION

Taxonomic Diversity

In the present study, it's revealed that about 35 wild plant species belonging to 25 genera comprising 19 families (Table 1) were used as sources of food variety by the people of Sohmynting village. The family Asteraceae show the highest utilization (16.00%) Genera and (25.71%) Species, followed by Moraceae with (4.00%) Genera and (8.57%) Species, Apiacea, Arecaceae, Begonaciea, Musaceae, Polygonaceae and Vitaceae with (8.00%) Genera and (5.71%) Speacies.

The family Amaranthaceae, Brassicaceae, Athyriaceae, Fabaceae, Hamamelideceae, Plantaginaceae, Primulaceae, Rutaceae, Saururaceae, Solanaceae and Zingiberaceae with (4.00%) Genera and (5.71%) Species

Table 1- Taxonomic diversity of recorded wild Edible Plants

Family	No. Of Genera	percentage of genera	No. Of Species	percentage of Species
Asteraceae	4	16.00	9	25.71
Amaranthaceae	1	4.00	1	2.86
Apiaceae	2	8.00	2	5.71
Arecaceae	2	8.00	2	5.71
Athyriaceae	1	4.00	1	2.86
Begonaciea	1	4.00	2	5.71
Brassicaceae	1	4.00	1	2.86
Fabaceae	1	4.00	1	2.86
Hamamelideceae	1	4.00	1	2.86
Moraceae	1	4.00	3	8.57
Musaceae	1	4.00	2	5.71
Plantaginaceae	1	4.00	1	2.86
Polygonaceae	2	4.00	2	5.71
Primulaceae	1	8.00	1	2.86
Rutaceae	1	4.00	1	2.86
Saururaceae	1	4.00	1	2.86
Solanaceae	1	4.00	1	2.86
Vitaceae	1	4.00	2	5.71
Zingiberaceae	1	4.00	1	2.86
Total= 19	25	100.00	35	100

Habit of the plants

The information on the wild edible plants used by the people of Sohmynting village was arranged alphabetically with their family, genus and species (Table 2). Herbs were mostly used as wild edible plants (65.71%) followed by shrubs (14.29%), trees (11.43%) and climbers (8.57%)

Table 2-Wild Edible Plants found in Sohmynting village

Scietific name	**Local name**	**Family**	**Mode of used**	**Part of uses**	**Month**	**Habit**
Begonia palmata D.Don	Iajaw khlo	Begonaciea	Cook	Leaf and shoot	All season	Herb
Begonia roxborghii A.DC	Iajaw khlo heh	Begonaciea	Cook	Leaf and shoot	All season	Herb
Centella asiatica (Linn). Urban	Tyngkhieh	Apiaceae	Eaten raw	Whole plant	All season	Herb
Chenopodium album Linn.	Jara	Amaranthaceae	Cook	Leaves	April-August	Herb
Corylopsis himalayana Giff.	Dein phaiur	Hamamelideceae	Cook	Flower	Feb-March	Shrub
Curcuma angustifolia	Lachein	Zingiberaceae	Cook	Flower	February-	Herb

Roxb.			and fry		April	
Diplazium esculentum (Retz.) Sw	Tyrkhang jhur	Athyriaceae	Cook and fry	Leaves	January-May	Herb
Embelia ribes Burm.f.	Jajaw dein	Primulaceae	Cook	Young leave	May-September	Shrub
Emilia reddyi Satish & Prakasarao	Jali ktieh	Asteraceae	Eaten raw	Leaves	March-November	Herb
Emilia sonchifolia (L.) DC	Jali stiar	Asteraceae	Eaten raw	Leaves	April-December	Herb
Fagopyrum cymosum Meissn	Jarain	Polygonaceae	Cook	leaf	4 season	Herb
Ficus auriculata Lour.	Sla soh phyrnai	Moraceae	Cook	Young leave	Feb-April	Tree
Ficus roxborghii Wall.	Sla shiat	Moraceae	Cook	Young leave	Feb-April	Tree
Ficus virens Aiton.	Dein jri	Moraceae	Cook	Young leave	March	Tree
Genura procumbens (Lour.) Merr.	Jali lieh	Asteraceae	Cook	Young leave	Feb-November	Herb
Houttuynia cordata Thunb.	Jamyrdoh	Saururaceae	Eaten raw	Whole plant	March-December	Herb
Lactuca serriola L.	Jangaw chieh khian	Asteraceae	Eaten raw	Leaves	March-0ctober	Herb
Lactuca virosa Linn.	Langiar khmutsim	Asteraceae	Eaten raw	Leaves	January-December	Herb
Lepidiun banksii Kirk	Jaralud	Brassicaceae	Cook	Young leave	March-July	Herb
Musa acuminata Colla	Ladaw	Musaceae	Eaten raw and cook	Flower & Fruit	All season	Herb
Musa balbisiana Colla.	Pachor	Musaceae	Cook	Flower & Stem	All season	Herb
Oenanthe sarmentosa C.Presl ex DC.	Chera	Apiaceae	Eaten raw	Young leave	January-December	Herb
Phoenix roebelenii O'Brien	Satlai	Arecaceae	Cook and burnt	Flower	March-May	Shrub
Plantago erosa Wall.ex Roxb.	Skhor blang	Plantaginaceae	Eaten raw and cook	Young leave	April-July	Herb
Polygonum chinense L. H.Gross	Syndem sniang	Polygonaceae	Cook	Leaves and stem	January-December	Herb
Solanum indicum Linn.	soh ngang	Solanaceae	Eaten raw and fry	Fruit	June-February	Shrub
Sonchus arvensis Linn.	Jangaw kyntir sla	Asteraceae	Eaten raw	Leaves	January-December	Herb
Sonchus asper (Linn.) Hill	Jangaw shiahheh	Asteraceae	Eaten raw	Leaves	January-December	Herb
Sonchus oleraceus Linn.	Jangaw ahchrong	Asteraceae	Eaten raw	Leaves	January-December	Herb
Sonchus wightianus DC.	Langiar	Asteraceae	Eaten raw	Leaves	January-December	Herb
Tetrastigma leucostaphylum (Dennst.) N.P.Balakr.	Syrpung	Vitaceae	Cook	Young leave and fruit	March-May	Climber
Tetrastigma planicaule (Hook.f.) Gagnep.	Slangnar	Vitaceae	Cook	Young leave and fruit	March-May	Climber
Trachycarpus martianus (Wall. ex Mart.) H.Wendl.	Dein kliaw	Arecaceae	Cook	Flower	March-May	Tree

Vigna vexillata (Benth.) A. Rich.	Toh khne	Fabaceae	Eaten raw and cook	Seed	July-December	Climber
Zanthoxylum khasianum Hook. f.	Iaiur	Rutaceae	Spicy	Fruit, seed and leaves	September-April	Shrub

Fig 2- (A) Chenopodium album, (B) Tetrastigma leucostaphylum, (C) Lepidiun banksii, (D) Trachycarpus martianus, (E) Phoenix roebelenii and (F) Houttuynia cordata.

Part and Mode of uses of the plants

The data indicate that different parts of the plants were utilised for the food source varieties with various mode of preparations (Table 3). The parts mostly used were leaves (57.14%), followed by Flowers (11.43%), leaves & stem and whole plant (5.71%) respectively, fruit & leaves (8.57%). Fruit and other combinations viz. Flower & Stem and Flower & Fruit were also used in few species.

Table -3 Mode and part of Uses

Scientific name	Mode of used
Begonia palmata D.Don	The young leaves and stem of this Plant was Cook either in plain water or with little amount of oil and also cooked with any types of dry fish.
Begonia roxborghii A.DC	The young leaves and stem of this Plant was Cook either in plain water or with little amount of oil and also cooked with any types of dry fish.
Centella asiatica (Linn). Urban	The whole part of this plant was eaten raw and mixed with Onion and green Chilli as salad
Chenopodium album Linn.	The young leaves of this Plant were Cook either in plain water or with little amount of oil and also cooked with any types of dry fish.
Corylopsis himalayana Giff.	The flower of this Plant was Cook either in plain water or with little amount of oil and also cooked with any types of dry fish.
Curcuma angustifolia Roxb.	The flower of this Plant was Cook with little amount of oil and also fry along with Potato or fry with any types of dry fish.
Diplazium esculentum (Retz.) Sw	The leaves of this Plant was Cook with little amount of oil and also fry along with Potato, Tomato or fry with any types of dry fish.
Embelia ribes Burm.f.	The young leaves of this Plant were Cook either in plain water or with little amount of oil and also cooked with any types of dry fish.
Emilia reddyi Satish & Prakasarao	The leaves of this plant was eaten raw as salad and they believe it is help full to regulate the High Blood Pressure.
Emilia sonchifolia (Linn.) DC	The leaves of this plant was eaten raw as salad
Fagopyrum cymosum Meissn	The young leaves of this Plant were Cook either in plain water or with little amount of oil and also cooked with any types of dry fish.
Ficus auriculata Lour.	The young leaves of this Plant was chop then Cook along with Dal either in plain water or with little amount of oil
Ficus roxborghii Wall.	The young leaves of this Plant were chopped then Cook along with Beaf

Ficus virens Aiton.	The young leaves of this Plant were chopped then Cook along with Beaf or Pork.
Genura procumbens (Lour.) Merr.	The young leaves of this Plant were chop then Cook along with Dal either in plain water. Long-time before the modern agriculture has not been developed in this region, this plant was used as an alternative food instead of cooking rice in summer season. According to the respondent, this plant was cultivated but now due to the influence of modern agriculture this plant was left as a weed.
Houttuynia cordata Thunb.	The whole part of this plant was eaten raw and mixed with Tomato, Onion and green Chilli as salad.
Lactuca serriola Linn.	The leaves of this plant was eaten raw as salad and they believe it is help full to regulate the High Blood Pressure especially the milky juice of the plant
Lactuca virosa Linn.	The leaves of this plant was eaten raw as salad and they believe it is help full to regulate the High Blood Pressure especially the milky juice of the plant
Lepidiun banksii Kirk	The young leaves of this Plant were Cook either in plain water or with little amount of oil and also cooked with any types of dry fish.
Musa acuminata Colla	The fruit of this plant that is the banana was eaten raw and it was used as the food for the Baby while the flower of this plant was cooking as vegetable.
Musa balbisiana Colla.	The flower and the young part of the stem of this plant was cooking as vegetable.
Oenanthe sarmentosa C.Presl ex DC.	The young leaves of this plant was eaten raw as salad and they believe this plant help in regulate the anaemia disease and it is the most prefer green vegetable for lactating mother.
Phoenix roebelenii O'Brien	The flower of this plant was Cook or burnt then mixed with Onion, green Chilli and grinded Perilla seed, the people used it as a kind of chutney.
Plantago erosa Wall.ex Roxb.	The young leaves of this plant was Eaten raw as salad and cook for soup
Polygonum chinense Linn. H.Gross	The leaves and stem of this plant was cooked with fish to make a fish curry
Solanum indicum Linn.	The fruit of this plant were eaten and fry with little amount of mustard oil
Sonchus arvensis Linn.	The leaves of this plant were eaten raw as salad and they believe it is help in blood circulation.
Sonchus asper (Linn.) Hill	The leaves of this plant were eaten raw as salad and they believe it is help in blood circulation.
Sonchus oleraceus Linn.	The leaves of this plant were eaten raw as salad and they believe it is help in blood circulation.
Sonchus wightianus DC.	The leaves of this plant were eaten raw as salad and they believe it is help in blood circulation.
Tetrastigma leucostaphylum (Dennst.) N.P.Balakr.	The young leaves of this Plant was chop then Cook along with dry fish, Beaf or pork either in plain water or with little amount of cooking oil. Long time before the modern agriculture has not been developed in this region; this plant was used as an alternative food instead of cooking rice in summer season. The fruit were consumed only when it is ripen.
Tetrastigma planicaule (Hook.f.) Gagnep.	The young leaves of this Plant was chop then Cook along with dry fish, Beaf or pork either in plain water or with little amount of cooking oil. Long time before the modern agriculture has not been developed in this region, this plant was used as an alternative food instead of cooking rice in summer season. The fruit were consumed only when it is ripen.
Trachycarpus martianus (Wall. ex Mart.) H.Wendl.	The flower of this plant was Cook or burnt then mixed with Onion, green Chilli and grinded Perilla seed, the people used it as a kind of chutney.

Vigna vexillata (Benth.) A. Rich.	The seed pod of this plant were eaten raw when it is young and the mature or ripen seed was cook
Zanthoxylum khasianum Hook. f.	The fruit, seed and leaves of this plant are being used as a spicy ingredient to bring the flavour and aroma to the different recipes

CONCLUSION

Interestingly to find in this study, according to the respondences in the olden days before the modern agriculture has not been developed in this region some plants species (Emilia reddyi, Genura procumbens, Phoenix roebelenii, Tetrastigma leucostaphylum, Tetrastigma planicaule, Chenopodium album, Lepidiun banksii) were used as an alternative food instead of cooking rice especially in summer season. Emilia reddyi, Genura procumbens were cultivated but now due to the influence of modern agriculture this plant was left as a weed or wild plant. Documentation about the knowledge such wild edible plants must play a very important role in Indigenous diets especially in times of hardship and famine.

Indigenous knowledge about food systems are a good way to deal with the climate crisis because there is diversity of land and diversity of food crops not only the ones we grow but those that are in the wild, they have survived for hundreds of years and are more resilient to climate stress than the farmed crops.

This study also revealed that human intervention on this natural resources such as unscientific stone and sand quarry, shifting cultivation and unmanaged fuel wood collection etc. has led to habitat loss of wild edible plants, and are the root causes of reduction of the biodiversity of wild edible plants. On this new generation, most of the people are not aware of the names of the long forgotten wild plants, the government, social organisations, village should be take the significant steps to revive and promote the important of wild edible plants. Appropriate awareness programs and conservation planning is essential to preserve the wild edible plant and it biodiversity. To preserve these plants in natural habitat, it is crucial to introduce the alternative or modern agriculture to the people instead of primitive shifting cultivation.

Utilization of wild edible plants will be an efficient instrument for renovation of traditional knowledge system inherent in tribal people. The necessary steps should also be taken for cultivation of important wild edibles in any systems. There is an ample scope for studies on regeneration behaviour, population structure and status of such biological resources. Therefore steps should be taken to protect such resources and further inventories need to undertake to understand their nutritional benefits and their long term sustenance for the future. This can easily be achieved, if the government launches programmes involving local community on care and share basis for conservation of such genetic resources.

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Conflict of Interest
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REFERENCES

[1]. Pardo-De-Santayana M, Tardi J and Morales R N. The gathering and consumption of wild edible plants in the Campoo (Cantabria, Spain). International Journal of Food Sciences and Nutrition, (2005); 56(7): 529/542
[2]. Pinela J, Carvalho A M, Ferreira I C.F.R. Wild edible plants: Nutritional and toxicological characteristics, retrieval strategies and importance for today's society. Food and Chemical Toxicology,(2017); 110, 165-188
[3]. Ceccanti C, Landi M, Benvenuti S, Pardossi A and Guidi L . Mediterranean Wild Edible Plants: Weeds or "New Functional Crops"?. Molecules (2018);23, 2299
[4]. Doni T and Gajurel P R. Diversity of wild edible plants traditionally used by the Galo tribe of Indian Eastern Himalayan state of Arunachal Pradesh. PLANT SCIENCE TODAY, (2020); 7(4), 523-533
[5]. Balemie K and Kebebew F. Ethnobotanical study of wild edible plants in Derashe and Kucha Districts, South Ethiopia. Journal of Ethnobiology and Ethnomedicine, (2006); 2:53
[6]. Seal T , Pillai B and Chaudhuri K. Evaluation of Nutritional Potential of Five Unexplored Wild Edible Plants Consumed by the Tribal People of Arunachal Pradesh State in India. Journal of Food and Nutrition Research, (2017); 5(1), 1-5

[7]. Niveditha T. M. A..Wild edible plants of India – A review. International Journal of Academic Research ISSN: 2348-7666, (2017); 4, 3(1)
[8]. Khan M. R., Kikim A. and Yadava P. S.. Conservat ion of Indigenous Wild Edible Plants Used by Different Communit ies of Kangchup Hills, Senapati, North East India. International Journal of Bio-resource and Stress Management, (2015); 6(6):680-689
[9]. Langshiang A S, Debnath A, Bhattacharjee A, Paul C and Debnath B. Traditional healing practices of Pnar and War communities in West Jaintia Hills district of Meghalaya, Northeast India. Indian Journal of Traditional Knowledge, (2020); 19(4),776-787
[10]. Sawian J T, Jeeva S, Lyndem F G, Mishra B P and Laloo R. C. Wild edible plants of Meghalaya, North-east India. Natural Product Radiance, (2007); 6(5), 410-426
[11]. Debnath B, Debnath A, Shilsharma S andPaul C, Ethnomedicinal knowledge of Mog and Reang communities of south district of Tripura, India, IJAPR, (2014); 1 (5), 49-54.
[12]. Deb D, Datta B K, Debbarma J. Ethno medicinal plants used for herbal medication of jaundice by the indigenous community of Tripura, India, Biodiversitas, (2016); 17 (1) , 256-269.
[13]. Deb D B, The Flora of Tripura State, Vol. I, (Today and Tomorrow' printers and publishers, New Delhi), 1981.
[14]. Deb D B, The Flora of Tripura State, Vol. II, (Today and Tomorrow' printers and publishers, New Delhi) 1983.
[15]. Kanjilal U N, Das A, Kanjilal P C, et al., Flora of Assam, Vol. 3. (Assam Govt. Govt. Press, Shillong), 1939.
[16]. Kanjilal U N, Kanjilal P C, De R N, et al., Flora of Assam, Vol. 4. (Assam Govt. Govt. Press, Shillong) 1940