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TRADITIONAL PHYTOTHERAPEUTIC USES IN PURBA MEDINIPUR, WEST BENGAL, INDIA

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ABSTRACT: The traditional health care system has been significantly used from ancient time. The rural people of Purba Medinipur, West Bengal still continue to depend on indigenous plants to cure their different types of primary health treatment. The present study explore 79 plant species belong to 41 families are systematically used in traditional health care system. Information was collected by the structures questionnaire, consultation and interviews with rural people, knowledgeable persons and women folk. The plants are principally used for the treatment of digestive disorder (24.4 %), respiratory trouble (25.64 %), dysentery (16.66 %), bleeding (12.8 %), snake and insect bite (11.53 %), skin infection (12.8 %) and sugar control (10.25 %). These wild medicinal plants are declining in number due to demolition and unscientific collection of plants. There is a requisite need to conserve the indigenous medicinal plants. This document will help to prepare a database of valuable indigenous plants and their issues for mankind.

INTRODUCTION: Ancient Indian literature incorporates a remarkably broad definition of medicinal plants and considers all plant parts to be potential source of medicinal substances ¹⁰. Traditional plants contain various compounds such as phenolic, alkaloids and tocopherols which have shown antioxidant activity. Also some other compounds show antimicrobial activity which inhibit the growth of different microorganism (bacteria). Phytochemicals are bioactive compounds of plant origin ². Phytotherapy promotes proper utilization and also to conserve these plant resources for further future use.

As per different reports India is one of the richest biological heritages with more than 50 million tribal people under 300 tribal communities, constituting about 8% of the total population of the country. About 15% of the total geographical area of the country is inhabited by the tribal's ^{1, 9}. The Indian sub-continent has a very rich diversity of plants species in a wide range of ecosystems. The Indian sub-continent approximately 8,000 species are considered as medicinally important and used for human as well as veterinary care across the country by village communities or in traditional medicinal system ¹⁴.

The knowledge of these indigenous drugs has come through verbally since generation to generation and played an important role in conservation and sustainable use of biodiversity ^{5, 17}. A major part of the developing countries still uses traditional folk medicine from plant resources ¹¹. Documentation of traditional knowledge of ethno medicinal use of

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plants has been considered as a high priority to support the discoveries of drugs benefiting mankind. The tribal populations, who have been the primary inhabitants of natural habitats, hold tremendous amount of traditional knowledge on the use of various biotic resources, which may have greater importance to the ongoing research and discoveries in the field. It is well acknowledged in literature that their age old practices of using plants to cure numerous ailments have paved the way to further the discovery of many lifesaving drugs¹⁶.

The tribal ethno-botanical information is significant not for the tribal people themselves, but also beneficial for the whole world. Unfortunately, these old civilizations, traditional skills and beliefs are going to be lost due to modernization, industrialization and also by discarding the traditional lifestyle by younger generation¹³. Traditional medicines comprises of formalized forms with well documented remedies practiced by lay people (e.g. European cloister medicine, Ayurveda, ancient Iranian medicine, Islamic medicine, traditional Chinese medicine etc.) as well as more informal practices orally handed down from generation to generation. Herbal remedies exert therapeutic activity because of their active constituents that act either alone or in combination⁶. The people of the tribal areas are the repository of accumulated experience and knowledge about traditional uses of medicinal plants¹⁵.

The knowledge of medicinal plant was developed through trial and error, rural health care is dominated by traditional medicine because of its affordability and accessibility to rural populace

relative to the high cost of orthodox medicines and lack of access to hospital facilities. It is a fact that the 25% of all medical prescriptions are based on substances derived from plants or plant-derived synthetic analogues. Over 80% of rural population depends on herbal therapeutics leading to increased exploitation of herbal plants coupled with the high rate of deforestation resulting in forest depletion and destruction¹². The traditional practitioners revealed that some ailments are effectively treated through herbal sphere and claimed to have herbal cure for lunatic, epilepsy, barrenness, impotence, poisoning or charming and fibroid, but the practitioners would not reveal the steps involved in the treatment to even their children not talk of the outsiders. They gained the knowledge of herbal drugs based on many beliefs, assumption and superstitions. It is difficult to unveil the much acclaimed curative potential of some methods of healing because of the mystical and secrecy which usually accompanied their practices⁷.

The present study was carried out to explore different indigenous medicinal plants and their uses by the rural people in Purba Medinipur district of West Bengal for the treatment of human ailments.

Study Area: Purba Medinipur is a quiet large area latitude 21° 56' 14'' N and longitude 87° 46' 35'' E and elevation 5 meters with agricultural belt of West Bengal. The Bay of Bengal lies in the south, the Hoogly River and South 24 Pargana to the east with coastal area. The soli type of this area is fertile and vast expanse of younger alluvial soils. This area is important for its tourism, fishing and processing industries.

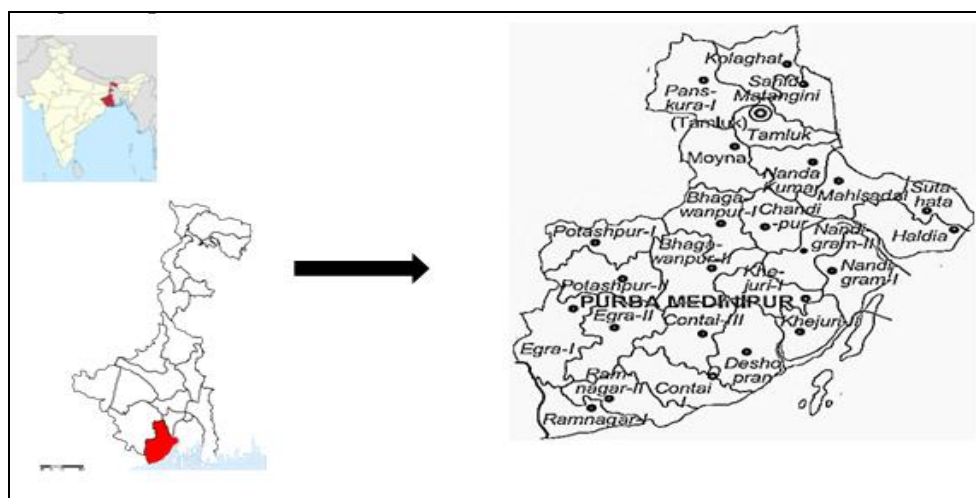


FIG. 1: STUDY AREAS IN MAP

MATERIALS AND METHODS: Ethno-medicinal study was carried out in villages of different blocks in Purba Medinipur district. The work was carried out through field study and conducted throughout the season during August 2015 to November 2016. Information was collected by the questionnaire, consultation and interviews with rural people, knowledgeable persons and women folk. The information was also cross verified with local aged and experienced practitioners. Plant specimens were collected and identified with the help of standard taxonomic literature.

RESULTS: From the present study, 79 species of medicinal plants belong to 41 families were surveyed to use for the treatment of different diseases. The major plant families were used by the rural people for their health cares are Acanthaceae, Apocynaceae, Asteraceae (12, 7 and 4 species of each), Apiaceae, Palmae and Rutaceae (3 species of each).

The plant species which were used by the rural people of Purba Medinipur district with scientific name, family, local name, parts used and medicinal uses are given in **Table 1**.

TABLE 1: THE TRADITIONAL USES OF MEDICINAL PLANTS IN PURBA MEDINIPUR DISTRICT

S. no.	Plant Species and Family	Local Name	Traditional Use	
			Parts Used	Used By Local People
1.	<i>Acanthus ilicifolius</i> L. Acanthaceae	Kanta Jhuri	Leaves, Stem Root	Whole plant is used for treatment of temporary senseless of organ, respiratory trouble and Blood Sugar control. Root decoction is used to relief cough, respiratory trouble
2.	<i>Gendarussa vulgaris</i> Burm. f. Acanthaceae	Bisallakarani	Leaves	Fresh juice of leaves is used in ear to cure pain, used to stop bleeding. Warm juice vapour is taken to cure headache, cough
3.	<i>Barleria lupulina</i> Lindl. Acanthaceae	Kanta Bisallakarani	Leaves	Leaves paste is applied on fresh cut and wounds to stop bleeding
4.	<i>Ruellia tuberosa</i> L. Acanthaceae	Chotpot	Leaves Stem, Root	Leaves decoction is taken to treat joint pain. Fresh juice of leaves is taken to relief from whooping cough, blood cleaning and weakness
5.	<i>Andrographis paniculata</i> (Burm.f.)Wall. Ex Nees Acanthaceae	Kalmegh	Leaves	Leaf juice is taken to control liver function, blood filtration. Paste soup is drank to relief from cough
6.	<i>Cynodon dactylon</i> (L.) Pers. Graminae(Poaceae)	Durba	Whole Plant	Fresh juice applied to cuts and wounds to stop bleeding from colon. Paste applied to stop bleeding from nose
7.	<i>Centella asiatica</i> (L.) Urban Apiaceae	Thankuni	Leaf	Fresh young leaves are chewed at early morning in empty stomach to control chronic dysentery and blood stool
8.	<i>Thevetia peruviana</i> (Pers.) Merrill. Apocynaceae	Karbari	Leaf, Root, Seed	Leaf paste is applied to remedy skin disease. Paste of Root bark is used to treat loss of pigmentation of skin. Seeds are used to relief from inflammation of joints
9.	<i>Hibiscus rosa-sinensis</i> L. Malvaceae	Jaba	Leaves	Leaf juice is drank to treat inflammation of colon, abdominal cure
10.	<i>Tridax procumbens</i> Linn. Asteraceae	Choto Ganda	Leaf, Stem	Juice is applied to stop bleeding of wounds. Stem juice is used to stop diarrhoea
11.	<i>Justicia adhatoda</i> L. Acanthaceae	Basak	Leaves	Leaves are boiled with water and is used to bath to cure chronic cough and cold
12.	<i>Barleria prionitis</i> Linn. Acanthaceae	Kanta Jhinti	Leaves , Root	Leaf juice is given for eye disease, melted root infusion is used in cough and tooth pain. Root juice is used to treat pimples
13.	<i>Hygrophila spinosa</i> T. Acanthaceae	Kulekhara	Leaf and Stem	Juice of fresh leaves and warm juice is taken for increasing haemoglobin as well as to treated anemia
14.	<i>Aegle marmelos</i> L. Correa Rutaceae	Bel	Stem, Bark Leaf, Fruit	Leaves are chewed at early morning help to control blood sugar. Fruit pulp taken for stomach ache. Fruit fleshy part is dried and used for diarrhoea
15.	<i>Ocimum tenuiflorum</i> L. Lamiaceae	Tulsi	Leaves	Leaves are taken orally to relief from common cold, respiratory trouble, fever and inflammation of lining of bronchial tubes
16.	<i>Terminalia arjuna</i> (Roxb.) Wight and Arn. Combretaceae	Arjun	Bark	Wet stem bark is taken at morning in empty stomach to cure gastrointestinal troubles and cardiac problems
17.	<i>Azadirachta indica</i> A. Juss. Meliaceae	Nim	Young Leaves Bark Seed	Water decoction of fresh and fried leaves drank for skin infection and allergy. Bark decoction is used for malaria. Seed oil is used for skin disease
18.	<i>Phoenix sylvestris</i> (L.)	Khejur	Fruit	Ripped fruit is taken to increase iron level in blood

19.	Roxb. Arecaceae <i>Cascabela thevetia</i> (L.) Lippold Apocynaceae	Kolke	Flower	Flower juice is taken to treat oral infection
20.	G. Don Apocynaceae <i>Catharanthus roseus</i> (L.)	Nayontara	Leaves Root, Buds	Fresh leaves paste is applied on cuts to help in quick healing and to stop nosebleed
21.	Ipomea aquatic Forssk. Convolvulaceae	Kolmisak	Leaf Stem	Leaves and stem are used as vegetables. Juice is applied on wounds
22.	<i>Citrus maxima</i> (Burm.) Merrill. Rutaceae	Batabilebu	Fruit Leaves	Leaves with warm water is used to bath to relief from dry cough. Fruits are eat for good digestion
23.	<i>Asparagus racemosus</i> Willd. Asparagaceae	Satamuli	Root	Roots are chewed to relief from abdominal trouble and inflammation of colon
24.	<i>Enydra fluctuans</i> Lour. Asteraceae	Hinche	Leaves Stem	Leaves and stem are used as vegetables for blood purifier and weakness
25.	<i>Oxalis corniculata</i> Linn. Oxalidaceae	Amrulsak	Whole Plant	Plant decoction is used for muscular associated pain or stiffness and inflammation of colon
26.	<i>Nyctanthes arbor-tristis</i> L. Nyctaginaceae	Seuli	Leaves Stem	Juice of leaves is used for abdominal cure. Bark decoction is taken to remittent fever and control blood sugar level
27.	<i>Echbolium viridae</i> (Forsk.) Merrill Acanthaceae	Nilkantha	Leaves Root	Warm juice of leaves is used to relief from severe pain of joints. Crushed roots with water is taken to treat jaundice
28.	<i>Alstonia scholaris</i> R. Br Apocynaceae	Chatim	Leaves Root Latex, Bark	Leaves juice is drank to stop mouth bleed. Root paste is applied on wound area. Warm latex is applied to cure chest pain and dental caries. Bark paste is applied on snake bite area
29.	<i>Aganosma dichotoma</i> (Roth) K. Schum. Apocynaceae	Malatilata	Leaves Stem	Whole plant decoction is used as antiseptic and respiratory trouble. Leaves decoction is used for eye problem
30.	<i>Tabernaemontana coronaria</i> R. Br. Ex Roem. and Schult Apocynaceae	Tagar	Leaves Latex	Milky latex is used on the wounds of snake bite, eye drop and skin infection
31.	<i>Pleumeria rubra</i> L. Apocynaceae	Kathmali	Leaves Root, Bark	Leaves decoction is used to control high fever. Root and bark paste is applied on swelling and inflamed area
32.	<i>Barleria cristata</i> Linn. Acanthaceae	Swet Jhinti	Leaf Root	Leaves juice is drank to relief from cough. Root and leaves paste is applied on swelling
33.	<i>Amaranthus caudatus</i> L. Amarathaceae	Marshisak	Leaves Root	Used as vegetables. Leaves decoction is taken for Pulmonary trouble, ulcer. Root juice is taken to control headaches
34.	<i>Ananas comosus</i> L. Bromeliaceae	Anaras	Leaves Fruits	Leaves decoction is taken to treat hiccough and constipation. Fruit is eaten to control gastric irritability and jaundice
35.	<i>Cyperous scariosus</i> R. Br. Cyperaceae	Muthaghas	Tuber	Tuber decoction is taken at early morning in empty stomach to relief from indigestion and chronic dysentery
36.	<i>Borassus flabellifer</i> L. Palmae	Tal	Fruit Spadices	Leaves juice and Fruit is eaten for hiccough and gastric inflammation. Spadices is useful in ulcers, Ash of dry spadices used as antacid and liver functioning
37.	<i>Calamus viminalis</i> Willd. Palmae	Bet	Leaves Root	Leaves juice is taken to treat chronic fever and gynae problem. Root decoction is used in treatment of jaundice and blood disease
38.	<i>Hemigraphis hirta</i> T. Anders. Acanthaceae	Baghua	Leaves Root	Leaves and root paste is applied to the snake bite region. Leaves juice is used to cure dysentery
39.	<i>Piper betle</i> L. Piperaceae	Pan	Leaf	Leaves juice is drank to relief from acidity and indigestion
40.	<i>Saccharum spontaneum</i> L. Poaceae	Kash	Root	Root decoction is used in respiratory and gynecological problem
41.	<i>Syzygium cumini</i> Skeels. Myrtaceae	Jumrul /Jam	Fruit Seed, Bark	Fruit directly taken. Seed powder taken for sugar control. Bark juice is taken for inflammation of colon
42.	<i>Abutilon indicum</i> (L.) Sw. Malvaceae	Petrol Phol	Leaves Root, Seed	Leaves juice is applied on fore head to reduce headache. Crushed root is to cure insect bite and fungal infection. Seed juice is used to relief from cough
43.	<i>Alocasia indica</i> (Roxb.) Schott. Araceae	Mankachu	Stem	A piece of stem with ripped banana is used to reduce blood secretion from colon
44.	<i>Calotropis gigantean</i> (Linn.) R. Br. Ex Ait. Asclepiadaceae	Arak	Leaf Latex	Leaves juice and latex mixed with ghee applied on abdomen to relief from pain and to treat wounds by poisonous insect

45.	<i>Dillenia indica</i> Linn. Dilleniaceae	Chalta	Leaf Fruit, Bark	Leaves paste is applied on carbuncle. Fruit is taken for indigestion. Bark juice is used to reduce food poisoning
46.	<i>Curcuma longa</i> Zingiberaceae	Halud	Rhizome	Rhizome paste is applied on skin to cure from skin infection and freshness. Rhizome powder with warm milk is taken at bed time to relief from cough, cold and weakness
47.	<i>Clerodendrum viscosum</i> Vent. Verbenaceae	Ghetu/Bhat	Leaf Root	Fresh young leaves juice is taken at early morning to cure intestinal worm and skin infection
48.	<i>Merremia gangetia</i> (L.) Cufod. Convolvulaceae	Musakani	Leaves	Leaves paste and juice is applied on cut and wounds to stop bleeding
49.	<i>Eclipta alba</i> (L.) Hassk Asteraceae	Keshunt	Leaves	Fresh juice applies over scalp to promote hair growth. To treat scorpion sting
50.	<i>Foeniculum Vulgare</i> Mill. Apiaceae	Mouri	Fruits	Fruits soaked in water overnight and drank the next morning for acidity, burning micturition and amoebiosis
51.	<i>Holarrhena anti</i> <i>dysenterica</i> Wall Apocynaceae	Kurchi	Stem Bark	Fresh bark juice is used in amoebiosis and dysentery.
52.	<i>Moringa oleifera</i> Lam. Moringaceae	Sajina	Leave, Root Bark, Fruits	Tender leaves & fruits used as vegetables to prevent Chickenpox. Root bark paste is applied locally in injuries
53.	<i>Saraca indica</i> Linn. Caesalpiniaceae	Ashok	Stem, Bark Flower, Seed	Stem and bark decoction is used for menstrual disorder. Flower decoction is taken for sugar control. Seed paste is in skin infection
54.	<i>Tinospora cordifolia</i> Miers Menispermaceae	Gulanca	Stem Tender	Stem juice with boiled water is taken in early morning to control sugar and cholesterol
55.	<i>Ficus bengalensis</i> Linn. Moraceae	Bat	Latex	3-4 drops latex added with sugar candy is taken in chronic amoebiosis
56.	<i>Terminalia chebula</i> Retz. Combretaceae	Haritaki	Fruits	Fruits powder taken at bed time also soaked in water overnight is drank at next morning for acidity, constipation
57.	<i>Vitex negundo</i> Linn. Verbenaceae	Nisinda	Leaves	Fresh leaves used as a hot poultice in swelling and joint pain
58.	<i>Momordica charantia</i> Linn. Cucurbitaceae	Karala	Fruits	Fruit juice drank in empty stomach especially for diabetes. Fruit is used as vegetables for skin itching
59.	<i>Piper nigrum</i> Linn. Piperaceae	Marich	Seed	Seed chewed with common salt and then swallowed in sore throat, cough, tonsillitis and pharyngitis
60.	<i>Cinnamomum tamala</i> (Buch.-Ham.) T. Nees. And C.H. Eberm Lauraceae	Tejpata	Leaf, Bark	Used as vegetable. Bark decoction is taken to relief from cough. Inhaling of smoke of dried leaves cure choked voice
61.	<i>Carica papaya</i> Linn. Caricaceae	Penpe	Fruit, Latex	Fruit latex mixed with water taken orally to increase appetite. Boiled fruit taken in constipation, jaundice and indigestion
62.	<i>Punica granatum</i> Linn. Punicaceae	Dalim	Leaves and Fruits	Tender leaves juice mixed with honey taken in diarrhea, dysentery, especially in neonates. Fruit cover juice is also used in diarrhea, dysentery of adults
63.	<i>Saccharum officinarum</i> Linn. Poaceae	Aakh	Stem	Stem juice taken in jaundice, burning Micturition and dehydration
64.	<i>Coccinia indica</i> W. & A. Cucurbitaceae	Telakucha	Leaves Fruit	Leaves juice drank in empty stomach in diabetes. Leaves paste is bound on head to relief headache. Fruit is used as vegetable for sugar control
65.	<i>Cocos nucifera</i> Linn. Araceae	Narkel	Green Coconut Water Oil	Green coconut water drank in dehydration. Oil is applied over scalp hair to promote hair growth
66.	<i>Emblica officinalis</i> Gaertn. Euphorbiaceae	Amlaki	Fruit	Fruit juice taken in acidity and also juice boiled with coconut oil to promotes hair growth
67.	<i>Paederia foetida</i> Linn. Rubiaceae	Gandal	Leaves	Leaves used as vegetables in diarrhea, Amoebiosis, dysentery and stomach problem. Leaves juice is boiled used in joint pain.
68.	<i>Allium Cepa</i> Linn. Liliaceae.	Paianz	Bulb	Crushed onion paste used locally in insect. Sting and eye vision.
69.	<i>Carum carvi</i> Linn. Apiaceae	Kalojira	Seeds	Seeds covered by cloth, rubbed & then inhaled in common cold
70.	<i>Mangifera indica</i> Linn. Anacardiaceae	Aam	Fruit	Boiled green mango used as syrup to drink in summer season for avoiding sun stoke
71.	<i>Bacopa monnieri</i> Pennell. Scrophularaceae	Brahmi	Leaves	Leaves juice and fried in ghee are then eaten to promote memory

72.	<i>Mimusops elengi</i> Linn. Sapotaceae	Bakul	Stem Bark	Stem bark decoction used as gurgling in spongy gum, bleeding gum etc
73.	<i>Tagetes erecta</i> Linn. Asteraceae	Ganda	Leaves	Leaves juice applied over cut injury to stop bleeding and juice is drank to cure abdominal pain
74.	<i>Psidium guava</i> L. Myrtaceae	Peyara	Fruit, Leaf	Fruit is eat to relief from indigestion. Leaf juice is taken to control blood sugar, mouth bleeding
75.	<i>Musca paradisiaca</i> L. Musaceae	Kola (Banana)	Stem, Fruit	Inner portion of stem is used as vegetable as a source of iron and fiber. Ripped fruit is taken for energy source
76.	<i>Tamarindus indica</i> L. Caesalpinaceae	Tentul	Leaf, Fruit	Warm paste of leaf is applied on joint or injured bone
77.	<i>Rungia pectinata</i> (Linn.) Nees Acanthaceae	Choto Sibjota	Leaves	Leaves are used as cooling agent. Crushed leaves is applied to lowers swelling
78.	<i>Citrus limon</i> (L.) Burm. F. Rutaceae	Jamir Lebu	Fruits Leaves	Fresh juice of leaves and fruits are taken to treat mouth bleeding, skin infection, digestion and dandruff
79.	<i>Ricinus communis</i> Linn Euphorbiaceae	Redhi	Branch	Luke warm oil messaged over abdomen for abdominal flatulence with pain especially for children. Branches used as tooth brush in bleeding gum

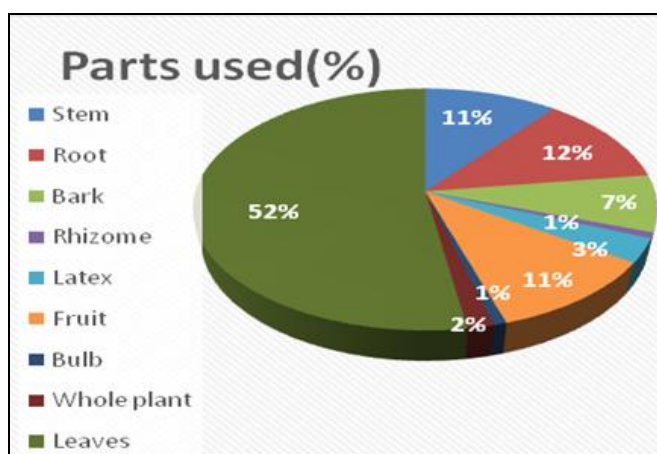


FIG. 2: PERCENTAGE (%) OF PLANT PARTS USED

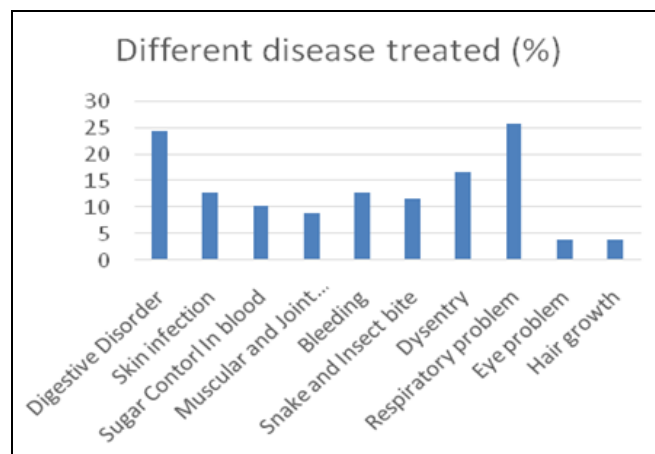


FIG. 3: PERCENTAGE (%) OF DIFFERENT DISEASE TREATED WITH PLANT PARTS

DISCUSSION: The use of traditional medicine is wide range in Purba Medinipur district. The information documented in this study is completely based on the primary source and the uses of locally available plants by the rural people as their household remedies. To treat various disease the rural people were using leaves (52%) most

commonly and followed by Root (12%), Stem(11%), Fruit (11%), Bark (7%), latex (3%), Whole plant (2%), Rhizome (1%) and Bulb (1%). The plants were used for the treatment of Digestive disorder (24.4 %), Respiratory trouble (25.64 %), Dysentery (16.66 %), to stop bleeding (12.8 %), Snake and Insect bite (11.53 %), Skin infection (12.8 %), Sugar control (10.25 %), Muscular and joint pain (8.97 %), Eye and Hair problem (3.84 %), Fever and Sexual disease. The medicinal use varies according to the symptoms as well as a particular medicinal plant is sometime used for different ailments in different localities. Sometimes plant parts are applied mix with other plant for remedy of disease.

Early researchers have also documented 50 species belonging to 20 families are used by rural and tribal people of Paschim Medinipur. Another documented 43 species belonging to 32 families were used by the rural people of Contai subdivision and 20 plants belonging to 16 families were used by Bharai village of Himachal Pradesh.

CONCLUSION: The rural area of Purba Medinipur district is an important source of the traditionally used medicinal plants with indigenous in nature. There was lack of organize data about the medicinally important plants throughout the entire district. The knowledge about uses of these medicinal plants is confined in different areas, which are not explored for human welfare. Medicinal plants with indigenous habit play an important role in providing knowledge to the researchers. So this article may help inhabitants, botanists, scientist or other interested persons for

the general idea about diversified use and will also attract the attention of Pharmacologist and Phytochemists for future critical investigation of medicinal plants present in Purba Medinipur district, West Bengal, India.

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