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CLIMATE OF WETLANDS OF NORTH BIHAR AND USE OF THEIR BIOWEALTH

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ABSTRACT

The Wetlands of North Bihar were surveyed and data were generated. Climatic conditions of studied wetlands are incorporated in the (table-1) Kavar lake Begusarai, Gaurdah kusmi lake, Saharsa, Kachna Dumri Chaur Khagaria, Dabkal Chaur Samastipur, Kusheswar asthan chaur Darbhanga Milki Chak Marsh Darbhanga, Thathopur marsh Darbhanga and Udaipur lake from west Champaran were studied. Inhabitant of the area is fulfilling their needs by using the wetland produce in many ways right from water for drinking, fishing and irrigation purposes. Wetland plants are used for treating several diseases. Some macrophytes such as Brahmi, Tal makhana, Kamal Bhent and Sorkha are frequently used into medication in the region. Old beliefs, myths appear to hinder the incorporation of common and medicinally potent wetland plants in the primary health care system of local people. This scientific study may enhance the positive facets of macrophytes and their valuable medicinal resource in the flood prone area of North Bihar. Mass awareness may be helpful inculcating the scientific temperament among the people of this region.

Key words: - Climate, Wetlands, Macrophytes, Medicinal use.

Introduction:-

North Bihar abounds in varied Wetlands as Chaurs, swamps, dhar, man, ditches, lakes, Ponds, pools and marshes (Munshi 1988, Dehadrai 1994, and Yadava, 2020). These wetlands support the luxuriant growth of diverse macrophytes and sustain the occurrence of several macro-invertebrate. These biowealth form valuable natural resources of the flood plains of the region. Since the evolution of human beings on the planet earth these biological resources are cattering the need in the form of food, vegetables, fodder and medicine (Jha et al 2014, Nandan and Singh, 2004, Singh, 2001, Rai and Munshi, 1982 and yadava, 2019). However there is no comprehensive account of medicinal aspects of biodiversity is discussed so far. Therefore the perspective of medicinal macrophytes and macro-invertebrate growing in the wetlands of North Bihar.

Study Area:-

The area of present investigation is North Bihar extending over about 56,960 km² with its 14.45 percent land under water logged condition. It is located in approximately between the geographical limits of longitudes 83° 50' 0" E to 88° 17' 40" E and latitudes 25° 13' 46" N to 27° 31' 15" N at an average attitude round about 61m above MSL. It is subjected to recurrent water logging on both Permanent, and temporary scales due to its bowl shaped Physiography, location near the Himalyan foothills and moderate annual rainfall. The overall regular occurrence of several natural wetlands mainly in the form of lakes, Chaurs and marshes scattered throughout its surface. The lakes are perennial whereas the Chaurs and marshes are seasonal in nature (Munshi and Munshi, 1995).

Climate:-

The climate of the area is monsoonic. It is divided into three seasons Winter, Summer and Rainy. The area experiences an uneven rainfall with mean annual value between 81.8 cm to 143.6 m (Table-1). The temperature varied in the range between (15.2°C–32.5°C) around the central place of the region (Samastipur). The relative humidity varies 57.10–80.61 percent with August, September as the most humid months recorded of the Year. The monthly pattern of rainfall, temperature and relative humidity at selected research sites follows almost the same trend with slight deviations except the magnitude of rainfall.

Materials and Methods:-

The human inhabitation surrounding lakes (kawar lake, Begusarai, Gaurdah- Kusmi lake Saharsa) Chaur, (Kachna Dumri Chaur, Khagaria Dabkal Chaur, Samastipur and Kusheshwarasthan Chaur Darbhanga and Udaipur lake West Champaran were selected for ethnomedicinal studies from the biodiversity occurring in and around these aquatic bodies Furthermore, other smaller wetlands were also explored intensively from ethnomedicinal point of view for augmentation and cross verification of data. All these sites were visited frequently in every season for over a period of ten years to procure information about biodiversity used by the rural people in the treatment of various ailments. The ethno medicinal information on macrophytes were gathered through conversations interviews and discussion with local herbal practitioner famous as Vaidyas and Hakims and elderly knowledgeable persons, sometimes also called Ojha and Gunni. Well-designed questionnaire were quite helpful to gathering the information. Repeated enquiries were made to authenticate the information. In order to get more ensured thorough assessment of medicinal macrophytes of the region, the preventive and curative properties of the commonly occurring species of macrophytes which are still unexploited locally for relief from diseases are obtained by searching out the available literature (Anonymous, 2010, Chopra *et al* 1956, Dastur, 1962 Dehadrai, 1994 Jain *et al* 1991 and Yadava, 2020). The identified bio wealth were arranged and enlisted in the (table – 2) along with common name and habit, habitat along with medicinal properties and uses.

Results and Discussion:-

The Wetlands of North Bihar harbor very rich biodiversity dominated by emergent macrophytes. In all these macrophytes seemed to be universal in their distribution in various Wetlands under studied. Several wetland plants were enlisted in (table -2) those were being used in the Folklore medicines of disease prevalent in habitations around different types of Wetlands of the area. During Survey of Wetlands at West-Champaran (Udaipur lake) It was observed that none of the pocket of district which organize a local Bazar or Hot is not selling meat material extracted out of gastropods even smaller size of molluscs population is not spared with the belief that meat is having several medicinal properties such as curing joint pain, arthritism and rheumatoid arthritis. Certain mud crab is also being supplemented in the meal because of certain medicine. Thus it does my spirit how to save fast depleting, species from Wetland habitat. Some plants which are used by common people for diseases are Brahmi, Talmakhana, Kamal Bhent and Sorkha are frequently used into medication in the region. By and large, the exploitation of Wetland plants for medicinal purposes is not encouraging in the region. The Non- Utilization of common and medicinal potent plants in primary health care system shows apathy just for curse of recurrent flooding. Till today the herbal lists also consider the aquatic macrophytes as obnoxious things and adhere themselves to the beliefs in their recommendations of medicaments against the ailments. The herb Brahmi which is known for their potential to enhance memory for centuries can be taken to exemplify the fiction. It is also worth to be mentioned about the multifarious curative properties and uses at least in the regions of occurrence in north Bihar, India (Anonymous, 2010 Chopra *et al* 1956, Jha *et al* 198, Jain *et al* 1991 and Kritkar and Basu, 1975.) keeping the high potential at of medicinal value it is perceived that common people should also be educated and tutored how to exploit these plants keeping the conservational aspects in their mind. Sometimes unknowingly the over exploitation of certain biodiversity and plant species may be disastrous to our nature, so exploit the bio wealth as a resource on sustainable basis.

Table-1 Characteristics feature of wetlands under Investigation

S.N o.	Name of the Wetlands	CHARACTER				
		Locations	Altitude	Annual rainfall (cm^2)	Area (km^2)	Mean Depth (cm^2)
1.	Kawar lake, Begusarai	25° 38.00/ 86°08'00	35.00	143.60	24.00	1.50
2.	Gaurdah Kusmi lake, Saharsa	25°43' 30/86°33.12	37.00	123.70	2.15	1.30
3.	Kachna Dumri Chaur, Khagaria	25°39.27/86°26.11	37.00	106.45	0.36	0.71
4.	Dabkal Chaur, Samastipur	25°-47.00/85°47'00	44.00	138.40	2.23	0.85
5.	K. Sthan , Darbhanga	25°49.19"/86°18.36°	37.00	81.80	2.10	1.13
6.	Milki Chak marsh Darbhanga	26°08.47/85°57'00°	45.00	81.80	1.30	0.03
7.	Thathopur marsh, Darbhanga	25°58.13"/86°02.27"	42.00	81.80	1.24	0.02
8.	Udaipur Lake, W.Champaran	26°-35°-27°-32/83°-50°	53.00	150.60	7.00	1.50

Table - 2 Wetlands plants having medicinal properties.

S.No.	Local name	Habit/Habitat	Parts used for medicinal properties
1.	Brahmi	Marshy, Swampy	Leaf appetizer and Laxative
2.	Arvi	Marshes	Juice of petiole
3.	Achhaini/ Bach	Marshes/Lake	Rhizome is used in skin disease
4.	Sarhanchi	Marshes	Plant used in diarrhoea
5.	Damari	Marshes	Leaf is having appetizes
6.	Kacher	Chaur, ditches Ponds, lakes	Plant is antiperiodic & antipyretic
7.	Doobhi	Marshes	Juice of fresh shoots is taken in indigestion
8.	Motha	Bank of Marshes	Plant is with full of stimulant Rhizome is used for extracting oil of high fragrance (cyperus oil)
9.	Mothi	Marshes	Tuber is eaten Boiled
10.	Bhangraiya	Margin of water bodies, ponds, ditches	Plant Juice is used in Jaundice
11.	Jalkumbhi	Water logged area	Petiole paste is used to check bleeding
12.	Makhana	Chaur and Ponds	Perisperm is consumed as tonic, fat less food.
13.	Samar	Lakes, Water bodies	Plant paste is applied on the body portion infected by skin disease
14.	Gokhura	Bank of ditches	Used in the treatment of Jaundice
15.	Karmi	Ponds, lakes , marshes	Leaves are boiled and eaten in gastric disorders
16.	Kessara	Free floating lakes water	Roots are used in fever
17.	Bhent/Koka/ Kumudini	Ditches, Lakes, Ponds	Rhizome powder is taken for dysentery and piles etc.
18.	Chhota Jalkumbhi	Ditches, Lakes, Ponds	Leaf Juice is taken in dysentery
19.	Mirmiri	Marsh	Roots are used astringent & cooling
20.	Singhara	Ponds, Water logged area	Cotyledons are consumed as food stuff
21.	Leerh	Water bodies, lake	Plant is stomachic
22.	Koliarya	Marshes, lake	Skin protector
23.	Tota	Margin of Marshes (Kawar lake)	Keeping antiviral properties root paste is applied on scabies.

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