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## Species diversity of some dicotyledonous medicinal plants of Madhubani district

Kumari Smita Jha\*

Department of Botany, L.N.M.University, Darbhanga, Bihar, India

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**Abstract-** The geographical territory of Madhubani district in general & township in particular are quite rich in distribution & abundance of dicotyledonous plants & herbs which carry significant medicinal value. In the present paper the abundance proportion of 10 such plants and herbs (4 plants and 6 herbs) has been reported out of random sampling of agricultural and vegetational belt of Madhubani town based upon per unit quadrat count of the standing plant and herbs of this community comprising ten dicotyledonous members, an interesting species diversity index has been statistically procured which indicates the proportionate dominance and recessiveness of the members. The value is helpful in providing statistical information regarding the intricate but significant relationship amongst the members of the community and the environmental resources support them. The medicinal properties of these plants can be interpreted in terms of species diversity value and their relative abundance which can be helpful for human society.

**Keywords :** dicotyledonous plants, per unit quadrat S.W Species diversity index, medicinal value.

### INTRODUCTION

Species diversity is a function of species richness and abundance. In a community of multiple species co-existence, the cumulative proportion of species richness and abundance is the product of species abundance and its logarithmic value which is literally known as species richness.<sup>1,2</sup>

The environmental scientist particularly engaged in studies of floral and faunal diversities at community level in any ecosystem has agreed to the above concept of species diversity computation and as such 1953 two German scientist Shannon & Weiner proposed a statistical formula

species diversities computation which has been popularly accepted and established till date.<sup>3-5</sup>

In the present investigation 10 dicotyledonous medicinal plants have been sampled from different parts of Madhubani district. Dicotyledonous plants are basically flowering angiosperms with brilliant colored flower and leaves and majority of them have active components of medicinal value hence the present studies have been undertaken to bring on record the medicinal dicots of Madhubani district urban area.<sup>6</sup> Plants sampled from selected sites of the city as mentioned in the materials and methods section have been identified taxonomically in the laboratory through herbarium preparation and their individual abundance in the sampling site has been numerically counted and recorded in the table of

\*Corresponding author :

Phone : 8521999359, 7903033040

E-mail : smitajha627@gmail.com

observation.<sup>7</sup> The plant in its live habitat has been photographed and counted at per unit quadrat scale and no individual has been destroyed and uprooted as per the ethics of biodiversity studies.<sup>8,9</sup>

**MATERIAL & METHODS**

As per the standard protocols laid down for the computation of species diversity value under the discipline of statistical information indices (P.Stiling, 2002)<sup>10</sup>, following steps were taken as methodology to collect the required material related to the investigation.

**Prot. 1.** Field survey of dicotyledonous medicinal plants of Madhubani district:-

Following areas of the Madhubani urban part have been surveyed for the occurrence and prevalence of medicinal plants-

i. Karnapur	iii. Brahamotra
ii. Harlakhi	iv. Sagarputra
iii. Jhajharpur	v. Khajauli
	vi. Bela

**Prot. 2.** Quadrat sampling of naturally occurring dicots in the above sites:-

Roughly a square area of 10 x 10 (1000 sq.ft) was observed for the occurrence of dicot plants having medicinal value. The numbers of the plant standing in the area were counted and few representatives brought to the laboratories for their scientific identification. The numbers of occurrence of plants specially focusing on ten species with medicinal properties was recorded in the data computation table for statistical analysis of the species diversity.

**Prot. 3.** Adequate photography of the sampling sites was also done to authenticate the survey and sampling work under the project.

**Prot. 4.** Taxonomic identification and preparation of herbarium of the sampled medicinal dicots:-

Few representatives of the ten sampled species of medicinal dicots

Plants name	No. of Plants	$p_i = n/N$	$\text{Log } p_i$	$p_i \times \text{Log } p_i$	$H = -\sum p_i \times \text{Log } p_i$
Bhangaria	400	0.261438	-0.58263	-0.15232	<b>0.8514</b>
Amala	30	0.019608	-1.70757	-0.03348	
Sarpgandha	250	0.163399	-0.78675	-0.12855	
Guruchlatti	300	0.196078	-0.70757	-0.13874	
Papita	50	0.03268	-1.48572	-0.04855	
Aam	5	0.003268	-2.48572	-0.00812	
Haldi	45	0.029412	-1.53148	-0.04504	
Chukandar	150	0.098039	-1.0086	-0.09888	
Saunth	150	0.098039	-1.0086	-0.09888	
Methi	150	0.098039	-1.0086	-0.09888	
<b>Total</b>	<b>1530</b>			<b>-0.8514</b>	

**Table 1: Survey and sampling of 10 medicinal dicots from selected sites of madhubani urban area with their avg per unit quadrat (10 x 10 = 1000sq ft.) abundance in the experimental year 2013-14.**

Sl No.	Scientific Name	Common Name	Family	Avg No. (Abundance)
1	<i>Vermonia Cinerea</i>	Bhengaria	Asteraceae	400
2	<i>Phyllanthus emblica</i>	Amla	Phyllanthaceae	30
3	<i>Rauwolfia serpentina</i>	Sarpgandha	Apocynaceae	250
4	<i>Tinospora Cordifolia</i>	Guruchlatti	Menispermaceae	300
5	<i>Carica Papaya</i>	Papita	Caricaceae	50
6	<i>Mangifera Indica</i>	Aam	Anacardiaceae	5
7	<i>Curcuma Longa</i>	Haldi	Zingiberaceae	45
8	<i>Beta Vulgaris</i>	Chukandar	Amaranthaceae	150
9	<i>Foeniculum vulgare</i>	Saunf	Apiaceae	150
10	<i>Trigonella foenum gracum</i>	Methi	Fabaceae	150

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### Collection Sites



**Collection Site of Bela**



**Collection Site of Brahamotra**



**Collection Site of Harlakhi**



**Collection Site of Jhanjharpur**



**Collection site of Karnapur**



**Collection Site of Khajauli**

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