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EVALUATION OF MOISTURE CONTENT OF SOME ETHNO-MEDICINAL PLANTS USED TO TREAT PEPTIC ULCER IN RANCHI DISTRICT OF JHARKHAND

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ABSTRACT

Peptic ulcer is a common gastrointestinal disorder having erosion in the lining of the stomach or duodenum. Excessive secretion of gastric acid leads to the formation of ulcer. The present synthetic treatment of ulcer is not efficacious enough and is expensive and associated with several side effects. In such scenario herbal medicines seems to be a encouraging substitute. These plants contain various bioactive components which make them potential herbs. The present study is based on extensive and intensive field surveys made during the year 2021 to 2023. Documentation of large number of ethno medicinal plants were done by interviewing vaidyas, local healers, tribals knowledgeable person etc. Some medicinal plants like *Annona squamosa, Butea monosperma, Carica papaya, Glycyrrihiza glabra, Moringa oleifera, Psidium guaja*va were selected for moisture content determination and was found to be highest in Moringa oleifera with 80.76 % followed by Carica papaya (79.92%), Annona squamosa (76.62%), Psidium guajava (76.18%), Glycyrrhiza glabra (76.14%) and Butea monosperma (72.10%). These finding helps in determing potential of these herbs and making them suitable source for the treatment of ulcer.

KEYWORDS: Herbal plants, Moisture content, Peptic ulcer, Ethno medicinal knowledge.

INTRODUCTION

Plant parts used as phytomedicine by human being since ancient time. Cultural and herbal biodiversity of India contributes to traditional system of medicine (Hodopathy).

India is known as botanical garden of the world as it is the largest producer of herbal medicines. Ayurveda, Siddha, Unani, Homeopathy, Yoga and Naturopathy are recognized Traditional System of Medicine of India in the world.[1] Extensive description of various medicinal herbs are given in Charak Samhita and Sushruta Samhita.[2]

Jharkhand is a plateau region having dynamic floristic diversity. The state occupies a unique position in the map of tribal communities. These communities starts their life from forest and ends in the forest.[3]

Ranchi is one of the most fortunate places on the earth that enjoys generosity of the nature in its fullness. The utility of plants by the indigenous people of Ranchi district for different purposes have been mentioned by Sahu et. al on Ethno- Botanical studies of Ranchi district of Jharkhand, conducted during 2001-2004.[4] A large number of plants have been found to have medicinal properties including *Annona squamosa, Butea monosperma, Carica papaya, Glycyrrihiza glabra, Moringa oleifera, Psidium guajava, Allium sativum, Tamarindus indica* etc. These ethnic knowledge passes from one generation to the next mouth to mouth and hence needed to be preserved.

Peptic ulcer is a common gastrointestinal disorder having erosion in the lining of stomach or the duodenum.[5] The formation of peptic ulcer depends on the excessive secretion of gastric acid.

MATERIAL AND METHODS

This research work has been conducted in following ways:

Survey: Field survey was conducted on the basis of ethno medicinal literature review and conversation with vaidyas, faith healers, pahanas, herbalists, tribal and non tribal and knowledgeable person.

Study area: The data was collected from four different blocks of Ranchi district i.e. Ormanjhi, Ratu, Itki and Kanke of Jharkhand.

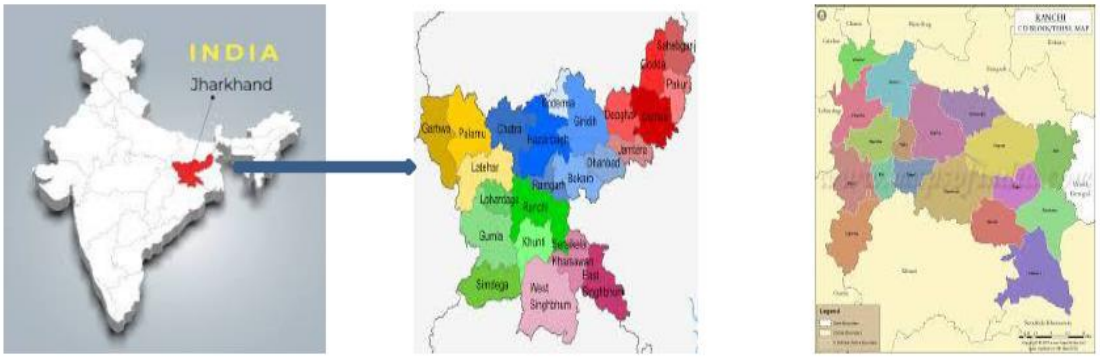

Figure (a) Map of India showing state Jharkhand, (b) Blocks of Ranchi Districts of Jharkhand India.

Data collection: Direct interview with local healer, hakims, vaidyas, primitive tribes were conducted to collect ethno medicinal data. Secondary information like flora, maps, census, statistics were collected through literature reading.

Survey of fields, sample collection, interaction with knowledgeable persons were recorded by digital camera.

Identification: Collected plant samples were identified using Botany of Bihar and Orissa vol.2 (part Ⅲ-Ⅳ) and were also confirmed by Prof. Dr. Kunul Kandir, Prof in charge of Plant Taxonomy, Ethno Botany and Medicinal Plants.

Moisture content determination: The collected plant samples were dried and crushed to powder form. 5gm of each dried sample were weighed and were oven dried for 2 days at 70^{O} C. After that dried weight of the sample were taken. The percentage difference in weight loss in each sample were reported as the percentage moisture content.

The percentage of moisture was calculated by the following formula

$$\text{Moisture Content (\%)} = \frac{\text{Fresh wt.of sample} - \text{Dry wt.of sample}}{\text{Fresh wt.of sample}} \times 100$$

RESULT AND DISCUSSION

In this present investigation moisture content of few ethnomedicinal plants like *Annona squamosa, Butea monosperma, Carica papaya, Glycyrrihiza glabra, Moringa oleifera, Psidium guaja*va were performed and it/ was found to be highest in Moringa oleifera with 80.76 % followed by Carica papaya (79.92), Annona squmosa (76.62), Psidium guajava (76.18), Glycyrrhiza glabra (76.14) and Butea monosperma (72.10).

The result of this work helps in determining the potential of these plants in the treatment of peptic ulcer and also documentation of ethnic knowledge along with scientific touch.[6]

Table 1: Moisture content of Moringa oleifera L. Leaves.

No. of observation	Wt. of fresh sample(gm)	Wt .of dry sample(gm)	Difference (gm)	Moisture content (%)
1	5.00	0.95	4.05	81.00
2	5.00	0.94	4.06	81.20
3	5.00	0.94	4.01	80.20
4	5.00	0.88	4.12	82.40
5	5.00	0.91	4.09	81.80
6	5.00	0.99	4.01	80.20
7	5.00	0.87	4.13	82.60
8	5.00	1.05	3.95	79.00
9	5.00	1.10	3.90	78.00
10	5.00	0.94	4.06	81.20
			total	807.60

Average moisture content = 80.76%

Table 2: Moisture content of Psidium guajava L. Leaf.

No. of observation	Wt. of fresh sample (gm)	Wt. of dry sample(gm)	Difference (gm)	Moisture content (%)
1	5.00	1.25	3.75	75.00
2	5.00	1.23	3.77	75.40
3	5.00	1.20	3.80	76.00
4	5.00	1.10	3.90	78.00
5	5.00	1.32	3.68	73.60
6	5.00	1.27	3.73	74.60
7	5.00	1.07	3.93	78.60
8	5.00	1.23	3.77	75.40
9	5.00	1.20	3.80	76.00
10	5.00	1.04	3.96	79.20
			total	761.80

Average moisture content = 76.18%

Table 3: Moisture content of Butea monosperma (Lam) Taub. Leaves.

No. of observation	Wt. of fresh sample (gm)	Wt. of dry sample(gm)	Difference (gm)	Moisture content (%)
1	5.00	1.45	3.55	71.00
2	5.00	1.43	3.57	71.40
3	5.00	1.50	3.50	70.00
4	5.00	1.33	3.67	73.40
5	5.00	1.41	3.59	71.80
6	5.00	1.24	3.76	75.20
7	5.00	1.30	3.70	74.00

8	5.00	1.50	3.50	70.00
9	5.00	1.36	3.64	72.80
10	5.00	1.43	3.57	71.40
			total	721.00

Average moisture content = 72.10%

Table 4: Moisture content of Carica papaya Linn seeds.

No. of observation	Wt. of fresh sample (gm)	Wt. of dry sample (gm)	Difference (gm)	Moisture content (%)
1	5.00	0.99	4.01	80.20
2	5.00	1.00	4.00	80.00
3	5.00	1.01	3.99	79.80
4	5.00	1.05	3.95	79.00
5	5.00	0.97	4.03	80.60
6	5.00	0.95	4.05	81.00
7	5.00	0.98	4.02	80.40
8	5.00	0.91	4.09	81.80
9	5.00	1.09	3.91	78.20
10	5.00	1.09	3.91	78.20
			Total	799.20

Average moisture content = 79.92%

Table 5: Moisture content of Annona squamosa Linn leaves.

No. of observation	Wt. of fresh sample (gm)	Wt. of dry sample (gm)	Difference (gm)	Moisture content (%)
1	5.00	1.00	4.00	80.00
2	5.00	1.39	3.61	72.20
3	5.00	1.03	3.97	79.40
4	5.00	1.01	3.99	79.80
5	5.00	1.00	4.00	80.00
6	5.00	1.02	3.98	79.60
7	5.00	1.01	3.99	79.80
8	5.00	1.49	3.51	70.20
9	5.00	1.57	3.43	68.60
10	5.00	1.17	3.83	76.60
			Total	766.20

Average moisture content = 76.62%

Table 6: Moisture content of Glycyrrhiza glabra L. roots.

No. of observation	Wt. of fresh sample (gm)	Wt. of dry sample (gm)	Difference (gm)	Moisture content (%)
1	5.00	1.21	3.79	75.80
2	5.00	1.30	3.70	74.00
3	5.00	1.23	3.77	75.40
4	5.00	1.09	3.91	78.20
5	5.00	1.25	3.75	75.00

6	5.00	1.11	3.89	77.80
7	5.00	1.22	3.78	75.60
8	5.00	1.16	3.84	76.80
9	5.00	1.17	3.83	76.60
10	5.00	1.19	3.81	76.20
			total	761.40

Average moisture content =76.14%

CONCLUSION

The moisture content of six plants like *Annona squamosa, Butea monosperma, Carica papaya, Glycyrrihiza glabra, Moringa oleifera, Psidium guaja*va unveils difference shown in the table in which *Moringa oleifera* has highest moisture content. This result helps in the credibility of the ethnic system of medicine and formulation of drugs in the future for peptic ulcer. These plants possess good amount of moisture and hence concluded as potential herbs.

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