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Study of some ethnomedicinally important plants used in gynaecological disorders by the Santal and Paharia tribes of Rajmahal Subdivision of Sahibganj District, Sahibganj, Jharkhand.

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Abstract- The presence of secondary metabolites in plants make them useful for the treatment of various health problems in rural India. In the present study, a first-hand documentation of some Ethnomedicinally important plants used in the gynaecological disorders, found in the vicinity of Rajmahal hills, of Rajmahal sub-division of Sahibganj District, Jharkhand, used by the Santal and Paharia tribe of the region was done. The tribal gurus have been using the stem, bark, twigs, flower, resins, nectar, latex roots, and leaves of diverse plants for different gynaecological problems since ages. These plants have been crucial to uplift the health of rural women. The tribal gurus have been empowered with this indigenous knowledge system and helped boost rural livelihood.

Key words: Gynaecology, Ethnomedicine, Santal, Paharia, Rajmahal Sub-division

INTRODUCTION

The Rajmahal subdivision is an administrative subdivision of Sahibganj District of Santal Pargana division, Jharkhand, India formed after the first war of independence (1855), act XXXVII of 1855, passed by the British Raj, and a separate district called Santhal Pargana was carved out of parts of Birbhum and Bhagalpur districts. Santhal Pargana had four sub-districts -Dumka, Godda, Deoghar and Rajmahal¹ Subsequently, Santal Pargana district comprised Dumka, Deoghar, Sahibganj, Godda, Pakur and Jamtara sub-divisions. In 1983 Deoghar, Sahibganj and Godda subdivisions were given district status.² The Rajmahal Hills are located in the Santhal Pargana division of Jharkhand, India. They were located on the northern margin of the Gondwana supercontinent,

and its hills are today inhabited by the Sauria Paharia people whilst its valleys are dominated by the Santhal people.³ The hills span over an area of 2,600 km² (1,000 sq mi).⁴

Ethnomedicine is a study or comparison of the traditional medicine based on bioactive compounds in plants and animals and practiced by various ethnic groups, especially those with little access to western medicines and this study is passed on orally generation after generation.⁵ The world health organization estimates that about 80% of the world population relies on herbal medicines for primary health care.⁶ The Gujjar, Bakerwal and Pahari tribes of Rajouri district of Jammu and Kashmir use some plants for their gynaecological problems.⁷ In Madhya Pradesh of India by the tribal people also use plants for gynaecological disorders.⁸ Recently the tribals in Dungarpur and Simalware region of also use herbal medicines in gynaecological disorders.^{9,10} The Malayali tribes¹¹ and the rural population

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of Haryana have used plants in gynaecological and other related problems.¹² The information about the traditional knowledge of the phytomedicine for female disease have been collected from the tribals of Mayurbhanj District, Orissa in India¹³ and more information has been gathered from West Bengal.^{14,15} Indigenous medicine used for treatment of Gynaecological disorders by the tribal of Chhattisgarh in India have also been reported.¹⁶ Plants used for the treatment of spontaneous abortion and miscarriage has been extensively investigated.¹⁷ In eastern parts of India plants used by tribals for the treatment of gynaecological disorders have also been investigated extensively.¹⁸

The most common gynaecological disorders present in the region are Amenorrhoea, Dysmenorrhoea, Leucorrhoea, Gonorrhoea, Syphilis, Menorrhagia, Menometrorrhagia, Metrorrhagia, Uterine disorders, Lactation, Abortion, Birth control, Post Partum Haemorrhage, Infertility, Oligomenorrhoea and Child death during delivery.

Keeping this in view the objective of the study was to identify, collect and document the different plants used by the Santal and Paharia tribe of the region to treat different gynaecological disorders, to conserve, study present status of plants, and also understand the economic benefits of the gurus.

Hypothesis:

1. Santal and Paharia herbal medicines are useful in treating women health problems of Rajmahal.
2. The plants are endangered.
3. The plants enhance rural livelihood.
4. The biodiversity of Rajmahal hills need to be conserved.

Research Methodology: Map of Study Area:



Map 1. Showing Map of Sahibganj District in Red.¹⁹

Demographic Details: Sahibganj is located at 24°42'N to 25°20'N and 87°25'E to 87°54' E.²⁰ and is the eastern most part of Jharkhand (Fig:1). It has an area of 12,601 km², population of 1,150,567 (2011).²¹ Literacy Rate 52.04%²² Sex Ratio 948, with 13.88% of the population living in urban areas, Scheduled Caste population of 6.29% and Scheduled tribe population of 26.80%. The mean temperature in 2017-2018 was 27.3°C Max to 23.8°C Min. and a rainfall of 161.3 mm. The soil of the region is entisols, inceptisols, alfisols and vertisols type.²³ The MDP of santal pargana was 53.22% while the MDP (JH) was 42.16%, the MPI score (SP) was 0.263, MPI score (JH) was 0.202, while that of India was 0.118.²⁴

Health care facilities: In 2011, in the CD blocks of Rajmahal subdivision there were 24 villages with primary health centres, 51 villages with primary health subcentres, 10 villages with maternity and child welfare centres, 3 villages with allopathic hospitals, 10 villages with dispensaries, 8 villages with veterinary hospitals, 4 villages with family welfare centres, 36 villages with medicine shops.¹⁹

Education: In 2011, in the CD blocks of Rajmahal subdivision out of a total 677 inhabited villages there were 72 villages with pre-primary schools, 392 villages with primary schools, 161 villages with middle schools, 24 villages with secondary schools, 11 villages with senior secondary schools, 3 villages with non-formal education centres, 2 villages with vocational training schools/ ITI, 277 villages with no educational facility.¹⁹

METHODOLOGY

A first hand data on the use of plants for the treatment of gynaecological disorders was collected during 2021-2022, using semi-structured questionnaire (Table 19.) from randomly selected 34 gurus, from 24 villages, 19 panchayats and 6 blocks of Santal and Paharia tribe of Rajmahal subdivision, Sahibganj, Jharkhand. The gurus treating more than 2 gynaecological disorders and willing to reveal the treatments and method of use were selected. The plants were collected and identified using Hains flora²⁵, horopathy by P.P. Hembrom²⁶, IUCN red list status using online iucnredlist.org²⁷ and the names were accepted using worldfloraonline.org²⁸. The herbarium of these plants was prepared and stored in University Department of Botany, Sido Kanhu Murmu University, Dumka. The plants were also brought to the University and planted in the campus of S. K. M. University, Dumka for *ex-situ* conservation.

OBSERVATION

A total of 88 plants, belonging to 56 genus, 58 species, 33 families are used by the tribals for the 18 different types of gynaecological disorders. The habit varied from trees, shrubs to herbs. Two of these plants were recorded in the IUCN Red List as Data Deficient, 8 as Least Concern, 1 as Near Threatened and the rest have not yet been recorded. They used the whole plant, fruits, barks, resins, nectar, roots, inflorescence, leaves, rhizome, twigs and buds of these plants. In Amenorrhoea 8 plants belonging to 8 genus, 8 species and 7 families are used (Table 1). In Dysmenorrhoea 6 plants belonging to 6 genus, 6 species and 5 families are used (Table 2). In Leucorrhoea 8 plants belonging to 8 genus, 8 species and 7 families are used (Table 3). If a child dies in the womb during delivery, then 3 plants belonging to 3 genus, 3 species and 2 families are used (Table 4) In menorrhagia, metrorrhagia and

metrorrhagia 2 plants belonging to 2 genus, 2 species and 2 families are used (Table 5, 6 and 7 respectively). In oligomenorrhoea 11 plants belonging to 11 genus, 11 species 9 families are used (Table 8). In uterine haemorrhage and infertility 3 plants belonging to 3 genus, 3 species and 3 families (Table 9 & 10) are used. In spontaneous abortion 9 plants belonging to 9 genus, 9 species and 8 families are used (Table 11). In post-partum haemorrhage 2 plants belonging to 2 genus, 2 species and 2 families are used (Table 12). In gonorrhoea 7 plants belonging to 7 genus, 7 species and 7 families are used (Table 13). In gonorrhoea and syphilis 3 plants belonging to 3 genus, 3 species and 3 families are used (Table 14 & 15 Respectively). In lactation 10 plants belonging to 10 genus, 10 species and 8 families are used (Table 16). In rapid delivery and birth control 3 plants belonging to 3 genus, 3 species and 3 families are used (Table 17 & 18 respectively).

Table 1. Medicinal plants used for the treatment of Amenorrhoea

Sl. No	Scientific Name	Common Name	Family	Habit	IUCN Red List Status	Parts Used	Method of usage
1	<i>Carica papaya</i> L.	Papita	Caricaceae	Tree	Data Deficient	Fruits, Latex	The fruits are either eaten raw or after being cooked as vegetable.
2	<i>Cynodon dactylon</i> (L.) Pers.	Dhubi Ghans	Poaceae	Herb		Whole Plant	Wet grind the fresh roots and give for oral consumption
3	<i>Tamarindus indica</i> Tourn. Ex L.	Jojo	Fabaceae	Tree		Root Bark	Wet grind the root bark and take it with milk, every morning.
4	<i>Vitex negundo</i> L.	Sinduari	Lamiaceae	Tree	Least Concern	Root, leaves	The root paste is taken in empty stomach, and the leaf paste is used as oral pain relief.
5	<i>Streblus asper</i> Lour.	Sarha	Moraceae	Tree	Least Concern	Bark	Paste of the bark is taken in empty stomach.
6	<i>Achyranthes aspera</i> L.	Kakra Latha	Amaranthaceae	Herbs		Root Bark, leaves	Wet grind the leaves and bark, give it every morning.
7	<i>Cocos nucifera</i> L.	Nariyal	Arecaceae	Tree		Shell fibre	The boiled shell fibre extract is given.
8	<i>Pterocarpus marsupium</i> Roxb	Murga	Fabaceae	Tree		Bark	Wet grind the bark and give her to drink with water.

Table 2. Medicinal plants used for the treatment of Dysmenorrhoea

Sl. No	Scientific Name	Common Name	Family	Habit	IUCN Red List Status	Parts Used	Method of usage
1	<i>Achyranthes aspera</i> L.	Kakra Latha	Amaranthaceae	Herbs		Root Bark	Wet grind the root bark and give her twice a day in empty stomach.
2	<i>Acacia nilotica</i> Willd.	Gabla	Fabaceae	Tree		Leaves, Bark, resins	Wet grind the leaves and bark and take it orally.
3	<i>Cocos nucifera</i> L.	Nariyal	Arecaceae	Tree		Shell fibre	The fibre is kept in water overnight and then the water is given in the morning.
4	<i>Phyllanthus emblica</i> L.	Meral	Phyllanthaceae	Tree	Least Concern	Fruits	Mix <i>P. emblica</i> , <i>T. foenum</i> , <i>S. chirayita</i> and soak it in water overnight and drink the extract.
5	<i>Trigonella foenum-graecum</i> L.	Methi	Fabaceae	Herbs		Seeds	Mix <i>P. emblica</i> , <i>T. foenum</i> , <i>S. chirayita</i> and soak it in water overnight and drink the extract.
6	<i>Swertia chirayita</i> (Roxb.) H.Karst.	Chai Chireta	Gentianaceae	Herbs		Whole Plant	Mix <i>P. emblica</i> , <i>T. foenum</i> , <i>S. chirayita</i> and soak it in water overnight and drink the extract.

Table 3. Medicinal plants used for the treatment of Leuchorrhoea

Sl. No.	Scientific Name	Common Name	Family	Habit	IUCN Red List Status	Parts Used	Method of usage
1	<i>Pterocarpus marsupium</i> Roxb	Murga	Fabaceae	Tree		Bark	Paste of the bark is given with sugar for 7 days in empty stomach, and non-veg is prohibited.
2	<i>Phyllanthus emblica</i> L.	Meral	Phyllanthaceae	Tree	Least Concern	Fruits	Mix <i>P. emblica</i> , <i>T. foenum</i> , <i>S. chirayita</i> and soak it in water overnight and drink the extract.
3	<i>Trigonella foenum-graecum</i> L.	Methi	Fabaceae	Herbs		Seeds	Mix <i>P. emblica</i> , <i>T. foenum</i> , <i>S. chirayita</i> and soak it in water overnight and drink the extract.
4	<i>Swertia chirayita</i> (Roxb.) H.Karst.	Chai Chireta	Gentianaceae	Herbs		Whole Plant	Mix <i>P. emblica</i> , <i>T. foenum</i> , <i>S. chirayita</i> and soak it in water overnight and drink the extract.
5	<i>Clerodendrum phlomidis</i> Linn.	Saram Lutur	Verbenaceae	Herbs	Least Concern	Whole Plant	The whole plant is wet grinded and given for oral consumption.
6	<i>Butea monosperma</i> (Lam.) Kuntze	Murut'	Fabaceae	Trees		Leaf	Wet grind the leaf and give her to drink.
7	<i>Ficus virens</i> Aiton	Pakare	Moraceae	Trees		Bark	Wet grind the leaf and give her to drink.
8	<i>Physalis minima</i> L.	Dimbu	Solanaceae	Herbs		Stem	Wet grind the leaf and give her to drink.

Table 4. Medicinal plants used when the child dies in the womb during delivery.

Sl. No.	Scientific Name	Common Name	Family	Habit	IUCN Red List Status	Parts Used	Method of usage
1	<i>Polygonum plebeium</i> R.Br.	Muc Arak'	Polygonaceae	Herb		Whole Plant	Wet grind 5 leaves and give her to drink.
2	<i>Pterocarpus marsupium</i> Roxb	Murga	Fabaceae	Tree		Bark	Wet grind the bark and give her to drink with water.
3	<i>Senna tora</i> (L.) Roxb.	Chakamanda Arak	Fabaceae	Herb		Seed	Wet grind the seeds and give her to drink in empty stomach.

Table 5. Medicinal plants used for the treatment of Menorrhagia

Sl. No	Scientific Name	Common Name	Family	Habit	IUCN Red List Status	Parts Used	Method of usage
1	<i>Hibiscus rosa-sinensis</i> L.	Joba Baha	Malvaceae	Tree		Inflorescence	Decoction of the inflorescence is prepared and given to drink for a week.
2	<i>Asparagus racemosus</i> Willd.	Kedar nadi	Liliaceae	Shrubs		Roots	Wet grind the roots and give her to drink.

Table 6. Medicinal plants used for the treatment of Menometrorrhagia

Sl. No.	Scientific Name	Common Name	Family	Habit	IUCN Red List Status	Parts Used	Method of usage
1	<i>Hibiscus rosa-sinensis</i> L.	Joba Baha	Malvaceae	Tree		Inflorescence	Decoction of the inflorescence is prepared and given to drink for a week.
2	<i>Asparagus racemosus</i> Willd.	Kedar nadi	Liliaceae	Shrubs		Roots	Wet grind the roots and give her to drink.

Table 7. Medicinal plants used for the treatment of Metrorrhagia

Sl. No	Scientific Name	Common Name	Family	Habit	IUCN Red List Status	Parts Used	Method of usage
1	<i>Zingiber officinale</i> Roscoe	Adhe	Zingiberaceae	Herbs	Data Deficient	Rhizome	Grind the root and mix some jaggery and give her to drink.
2	<i>Catharanthus roseus</i> (L.) G.Don	Sadabahar	Apocynaceae	Herbs		Whole Plant	Grind the whole plant and give her to drink.

Table 8. Medicinal plants used for the treatment of Oligomenorrhoea

Sl. No	Scientific Name	Common Name	Family	Habit	IUCN Red List Status	Parts Used	Method of usage
1	<i>Phyllanthus emblica</i> L.	Meral	Phyllanthaceae	Tree	Least Concern	Fruits	Mix <i>P. emblica</i> , <i>T. foenum</i> , <i>S. chirayita</i> and soak it in water overnight and drink the extract.
2	<i>Trigonella foenum-graecum</i> L.	Methi	Fabaceae	Herbs		Seeds	Mix <i>P. emblica</i> , <i>T. foenum</i> , <i>S. chirayita</i> and soak it in water overnight and drink the extract.
3	<i>Swertia chirayita</i> (Roxb.) H.Karst.	Chai Chireta	Gentianaceae	Herbs		Whole Plant	Mix <i>P. emblica</i> , <i>T. foenum</i> , <i>S. chirayita</i> and soak it in water overnight and drink the extract.
4	<i>Nelumbo nucifera</i> Gaertn.	Arak' Upel Baha	Nelumbonaceae	Herbs		Inflorescence	Mix <i>N. nucifera</i> , <i>P. acerifolium</i> , <i>Joba</i> , <i>Saparom</i> and prepare a decoction and give to drink daily.
5	<i>Pterospermum acerifolium</i> (L.) Willd.	Majkunder Baha	Malvaceae	Tree		Inflorescence, nectar	Mix <i>N. nucifera</i> , <i>P. acerifolium</i> , <i>Joba</i> , <i>Saparom</i> and prepare a decoction and give to drink daily.
6	<i>Hibiscus rosa-sinensis</i> L.	Joba Baha	Malvaceae	Tree		Inflorescence	Mix <i>N. nucifera</i> , <i>P. acerifolium</i> , <i>Joba</i> , <i>Saparom</i> and prepare a decoction and give to drink daily.
7	<i>Nyctanthes arbor-tristis</i> L.	Saparom Baha	Oleaceae	Tree		Inflorescence	Mix <i>N. nucifera</i> , <i>P. acerifolium</i> , <i>Joba</i> , <i>Saparom</i> and prepare a decoction and give to drink daily.
8	<i>Abutilon indicum</i> (L.) Sweet	Miru Baha	Malvaceae	Herbs		Inflorescence	Mix miru, hat, sarha, aphim and give her for oral consumption.
9	<i>Holarrhena antidysenterica</i> (L.) Wall.	Hat	Apocynaceae	Tree		Bark	Wet grind <i>H. antidysenterica</i> , Sarha and add some <i>P. somniferum</i> and give to drink orally.
10	<i>Streblus asper</i> Lour.	Sarha	Moraceae	Tree	Least Concern	Bark	Wet grind <i>H. antidysenterica</i> , Sarha and add some <i>P. somniferum</i> and give to drink orally.
11	<i>Papaver somniferum</i> L.	Aphim	Papaveraceae	Tree		Inflorescence	Wet grind <i>H. antidysenterica</i> , Sarha and add some <i>P. somniferum</i> and give to drink orally.

Table 9. Medicinal plants used for the treatment of Uterine Haemorrhage

Sl. No	Scientific Name	Common Name	Family	Habit	IUCN Red List Status	Parts Used	Method of usage
1	<i>Azadirachta indica</i> A.Juss.	Neem Banda	Meliaceae	Tree	Least Concern	Bark	Wet grind the bark and give it just after the period is over.
2	<i>Phyllanthus emblica</i> L.	Meral Banda	Phyllanthaceae	Tree	Least Concern	Bark, leaves	Wet grind the bark and leaves, mix it with milk and given.
3	<i>Chenopodium album</i> L.	Bhatua Arak'	Amaranthaceae	Herb		Whole Plant	Wet grind the whole plant and take it orally every morning.

Table 10. Medicinal plants used for the treatment of Infertility

Sl. No	Scientific Name	Common Name	Family	Habit	IUCN Red List Status	Parts Used	Method of usage
1	<i>Azadirachta indica</i> A.Juss.	Neem Banda	Meliaceae	Tree	Least Concern	Bark	Wet grind the bark and give it just after the period is over.
2	<i>Phyllanthus emblica</i> L.	Meral Banda	Phyllanthaceae	Tree	Least Concern	Bark, leaves	Wet grind the bark and leaves, mix it with milk and given.
3	<i>Chenopodium album</i> L.	Bhatua Arak'	Amaranthaceae	Herb		Whole Plant	Wet grind the whole plant and take it orally every morning.

Table 11. Medicinal plants used for the treatment of Spontaneous Abortion

Sl. No	Scientific Name	Common Name	Family	Habit	IUCN Red List Status	Parts Used	Method of usage
1	<i>Carica papaya L.</i>	Papita	Caricaceae	Tree	Data Deficient	Fruits	The fruits are eaten raw.
2	<i>Piper betle L.</i>	Pan	Piperaceae	Climbers		Leaves	The leaves are chewed raw along with <i>A. catechu</i> , <i>C. nucifera</i> ,
3	<i>Areca catechu L.</i>	Supari	Arecaceae	Tree		Seed	The seeds are cut and chewed raw along with Piper betel L.
4	<i>Foeniculum vulgare Mill.</i>	Saunf	Apiaceae	Herb		Seed	The seeds are eaten raw along with <i>A. catechu</i> , <i>C. nucifera</i> .
5	<i>Prunus avium (L.) L.</i>	Cherry	Rosaceae	Tree		Fruit	The fruits are eaten raw along with Areca and Piper
6	<i>Saccharum officinarum L.</i>	Ank	Poaceae	Herb		Juice, Extract	The juice extract is taken twice a day.
7	<i>Cocos nucifera L.</i>	Nariyal	Arecaceae	Tree		Fruit	The fruits are eaten raw along with Areca and Piper
8	<i>Ananas comosus (L.) Merr.</i>	Ananas	Bromeliaceae	Shrubs		Fruit	The fruits are eaten raw twice a day.
9	<i>Trigonella foenum-graecum L.</i>	Methi	Fabaceae	Herbs		Seeds	The Seed are fed to avoid unwanted pregnancy.

Table 12. Medicinal plants used for the treatment of Post-Partum Haemorrhage

Sl. No	Scientific Name	Common Name	Family	Habit	IUCN Red List Status	Parts Used	Method of usage
1	<i>Ocimum tenuiflorum L.</i>	Bhar-Bhari	Lamiaceae	Herbs		Leaves, Seeds	Wet grind the leaves and seeds and mix it with sugar and give for oral consumption
2	<i>Pterocarpus marsupium Roxb</i>	Murga	Fabaceae	Tree		Bark	Wet grind the bark and give her to drink with water.

Table 13. Medicinal plants used for the treatment of Gonorrhoea.

Sl. No	Scientific Name	Common Name	Family	Habit	IUCN Red List Status	Parts Used	Method of usage
1	<i>Cocos nucifera L.</i>	Nariyal	Arecaceae	Tree		Shell fibre	The fibre is kept in water overnight and then the water is given in the morning.
2	<i>Azadirachta indica A.Juss.</i>	Neem Banda	Meliaceae	Tree	Least Concern	Bark	Wet grind the bark is given just after the period is over.
3	<i>Terminalia chebula Retz.</i>	Rol	Combrataceae	Tree		Fruits	Wet grind the Fruits bark and give her to drink twice a day for 7 days.
4	<i>Pongamia pinnata (L.) Pierre</i>	Kurunj	Fabaceae	Tree		Bark	The paste of the bark is taken twice a day for two weeks.
5	<i>Sida cordifolia L.</i>	Latha Chipchirip	Malvaceae	Shrub		Roots	The root paste is given twice a day for two weeks.
6	<i>Phyllanthus emblica L.</i>	Meral	Phyllanthaceae	Tree	Least Concern	Fruits	The fruit juice is taken in empty stomach.
7	<i>Moringa oleifera Lam.</i>	Munga	Moringaceae	Tree	Least Concern	Root Bark	The bark of the roots is taken in empty stomach for two weeks.

Table 14. Medicinal plants used for the treatment of Gonorrhoea and Syphilis

Sl. No	Scientific Name	Common Name	Family	Habit	IUCN Red List Status	Parts Used	Method of usage
1	<i>Phyllanthus niruri L.</i>	Tandi Meral	Phyllanthaceae	Herb		Whole Plant	Wet grind the whole plant and give to the patient for two weeks just after the period.
2	<i>Terminalia bellirica (Gaertn.) Roxb.</i>	Lopong	Combrataceae	Tree		Fruits, Bark	Fresh fruits and bark paste is given in empty stomach.
3	<i>Bombax ceiba L.</i>	Edel	Malvaceae	Tree	Least Concern	Root, Fruit	Prepare fresh paste and give her to drink in empty stomach for a week.

Table 15. Medicinal plants used for the treatment of Syphilis

Sl. No	Scientific Name	Common Name	Family	Habit	IUCN Red List Status	Parts Used	Method of usage
1	<i>Gmelina arborea</i> Roxb.	Kasmar	Lamiaceae	Tree		Bark, Fruits	Paste of the bark and fruits is taken twice a day for 7 days.
2	<i>Gloriosa superba</i> L.	Semec' Samanom	Colchicaceae	Climber	Least Concern	Inflorescence	The inflorescence is soaked overnight and given for drinking.
3	<i>Terminalia chebula</i> Retz.	Rol	Combrataceae	Tree		Fruits	Wet grind the Fruits bark and give to drink twice a day for 7 days.

Table 16. Medicinal plants used for the treatment of Lactation

Sl. No	Scientific Name	Common Name	Family	Habit	IUCN Red List Status	Parts Used	Method of usage
1	<i>Euphorbia hirta</i> L.	Pussy Towa	Euphorbiaceae	Herbs		Whole Plant	Mix <i>E. hirta</i> with sugar and give it to drink.
2	<i>Gymnema decaisneanum</i> Wight	Andia moron	Apocynaceae	Climber		Leaves	Wet grind the leaves and give for oral consumption and some are applied on the breast.
3	<i>Alstonia scholaris</i> (L.) R.Br.	Chatni	Apocynaceae	Tree		Bark	Wet grind the plant and give to drink and a paste is applied on the breasts.
4	<i>Marsilea quadrifolia</i> L.	Chatom Arak'	Marsileaceae	Herbs		Leaves	Wet grind the leaves and give for oral consumption.
5	<i>Ricinus communis</i> L.	Eradom	Euphorbiaceae	Tree		Leaves	Boil the leaves and let the patient drink the extract.
6	<i>Agave tequilana</i> F.A.C. Weber	Andia Kongat'	Asparagaceae	Shrub		Leaves	Paste of the leaves is given with rice for 4-5 days.
7	<i>Carica papaya</i> L.	Papita	Caricaceae	Tree	Data Deficient	Fruits	The fruits are eaten raw or cooked.
8	<i>Jasminum grandiflorum</i> L.	Towa Baha	Oleaceae	Tree		Inflorescence	The inflorescence is soaked in water overnight and given to drink in empty stomach.
9	<i>Asparagus racemosus</i> Willd.	Kedar nadi	Liliaceae	Shrubs		Roots	Wet grind the roots and give her to drink.
10	<i>Senna obtusifolia</i> (L.) H.S.Irwin & Barneby	Bheda diring	Fabaceae	Herbs		Whole plant	Wet grind the whole plant and give her to drink.

Table 17. Medicinal plants used for rapid Delivery

Sl. No	Scientific Name	Common Name	Family	Habit	IUCN Red List Status	Parts Used	Method of usage
1	<i>Achyranthes aspera</i> L.	Kakra Latha	Amaranthaceae	Herbs		Root	The root is cut about 2cm long and inserted in the hair of the woman for easy delivery
2	<i>Evolvulus alsinoides</i> L.	Chatpatiya	Convolvulaceae	Herbs		Twigs	The twig is kept near the body of the pregnant mother for easy delivery.
3	<i>Gloriosa superba</i> L.	Semec' Samanom	Colchicaceae	Climber	Least Concern	Rhizome	Extract of the rhizome is applied externally to reduce labour pain.

Table 18. Medicinal plants used for Birth Control

Sl. No	Scientific Name	Common Name	Family	Habit	IUCN Red List Status	Parts Used	Method of usage
1	<i>Piper betle</i> L.	Pan	Piperaceae	Climbers		Roots	Mix Piper betel roots with 1gm of opium and give to drink for 2 weeks.
2	<i>Musa paradisiaca</i> L.	Kaira	Musaceae	Herbs		Buds	Bind the bud along with the napkin of the patient and bury it.
3	<i>Butea monosperma</i> (Lam.) Kuntze	Murut'	Fabaceae	Trees		Bark	Wet grind the bark and give her to drink for a week just after the mensuration.

RESULTS & DISCUSSION

The present study revealed that the Santal and Paharia tribe have identified and diagnosed 18 different types of gynaecological disorders.

Hypothesis Testing:

1. The mean use of the medicines was 4.88, the standard error was 0.721, the standard deviation was 3.103, the variance was 9.633. The use of herbal medicines was significant at 95% (1.54) confidence level and therefore the null hypothesis that the medicines are useful for improving the rural health status of women is accepted.
2. The mean for the endangered plants is 14.5, standard error was 10.94, the standard deviation was 21.886, confidence level (95%) was not significant therefore the alternate hypothesis that the plants are not endangered was accepted therefore since the plants are not endangered the other hypothesis that plants need not be conserved.
3. The mean income of the gurus was 5720.588, the standard error was 998.927, the standard deviation was 5824.700, the confidence level (95%) was significant at 2032.334, therefore the null hypothesis that the income enhances rural livelihood was true.
4. 81% of the plants used are not recorded in the IUCN Red List, 3% show data deficient, 2% of the plants are Near Threatened and 14% of the plants show Least Concern (Fig 1). The income of Amdanda was highest among the villages (Fig 2).

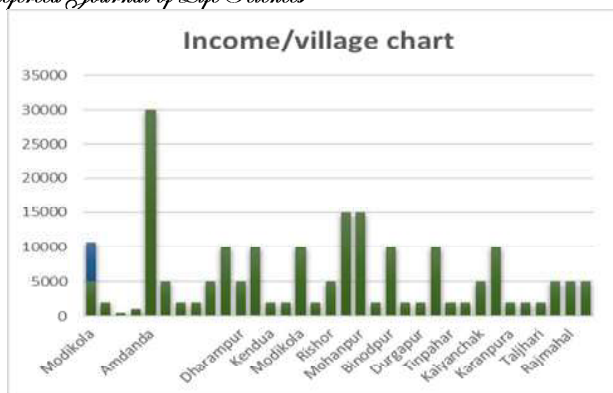


Fig 2: Showing Income per village

CONCLUSION

It was concluded that the rural population of Santal Pargana, living in the Rajmahal Subdivision of Sahibganj district, have the knowledge of ethnomedicine and have a significant contribution to the health of rural women especially the tribals. The paper will enhance the knowledge database of science and will be helpful for the development of new drugs for humanity and society at large.

Table 19. Questionnaire (1-16)

Socio Economic Questions:

1. Name of the Guru:
2. Age:
3. Gender:
4. Address:
5. Education:
6. Occupation:
7. Income/Month:

Ethnobotanical Questions:

8. Source of Knowledge: Ancestors/Training
9. Training: Yes/No
If Yes then: Heropathy/Others
10. Name some of the diseases you have treated:
11. Name some of the plants used:
12. What are the parts used:
13. How do you administer these plants: wet grind/ powder/decoction/infusion/others
14. How long?
15. Where do you get these plants from: Forest/Fields/ Garden/Others
16. Are there any precautions to take.

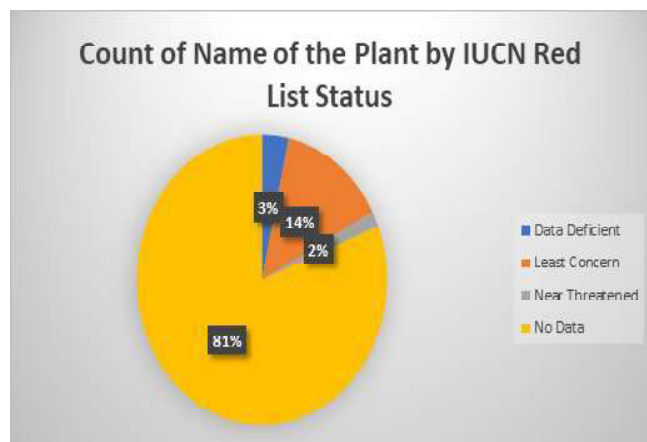


Fig 1: Showing IUCN red list status of plants

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Fig 3. Showing *Abutilon indicum* (L.) Sweet



Fig 4: Showing *Phyllanthus niruri* L.



Fig 5: Showing *Butea monosperma* (Lam.) Kuntze



Fig 6: Showing *Azadirachta indica* A.Juss.



Fig 7: Showing *Achyranthes aspera* L.



Fig 8: Showing *Cocos nucifera* L.



Fig 9: Showing *Acacia nilotica* Willd.



Fig 10: Showing *Carica papaya* L.



Fig 11: Showing *Ocimum tenuiflorum* L.



Fig 12: Showing *Cynodon dactylon* (L.) Pers.



Fig 13: Showing *Gymnema decaisneanum* Wight



Fig 14: Showing *Catharanthus roseus* (L.) G.Don



Fig 15: Showing *Papaver somniferum* L.

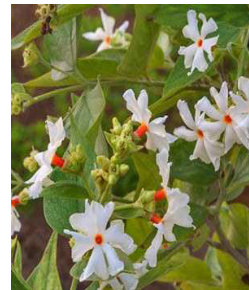


Fig 16: Showing *Nyctanthes arbor-tristis* L.



Fig 17: Showing *Euphorbia hirta* L.



Fig 18: Showing *Hibiscus rosa-sinensis* L.



Fig 19: Showing *Moringa oleifera* Lam.



Fig 20: Showing *Alstonia scholaris* (L.) R.Br.



Fig 21: Showing *Vitex negundo* L.

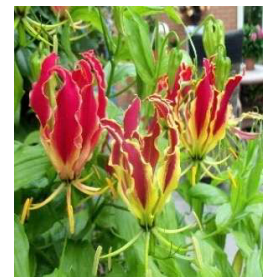


Fig 22: Showing *Gloriosa superba* L.



Fig 23: Showing *Pterocarpus marsupium* Roxb



Fig 24: Showing *Pterospermum acerifolium* (L.) Willd.



Fig 25: Showing *Pongamia pinnata* (L.) Pierre



Fig 26: Showing *Aegle marmelos* (L.) Corrêa



Fig 27: Showing *Agave tequilana* F.A.C.Weber



Fig 28. Showing *Ananas comosus* (L.) Merr



Fig 29. Showing *Areca catechu* nut.



Fig 30. Showing *Asparagus racemosus*.



Fig 31. *Bombax ceiba* L.



Fig 32. Showing *Chenopodium album*.



Fig 33. Showing *Clerodendrum phlomidis*

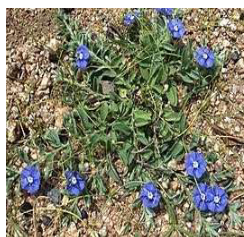


Fig 34. Showing *Evolvulus alsinoides*

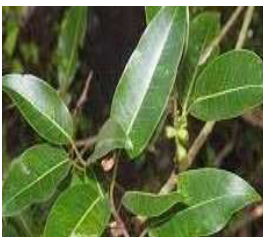


Fig 35. Showing *Ficus virens*.



Fig 36. Showing *Foeniculum vulgare* Mill.



Fig 37. Showing *Gmelina arborea*.



Fig 38. Showing *Holarhena antidysenterica* (L.) Wall.



Fig 39. Showing *Jasmine grandiflorum*.

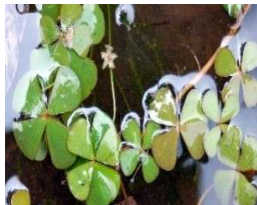


Fig 40. Showing *Marsilea quadrifolia*.



Fig 41. Showing *Musa paradisiaca*.

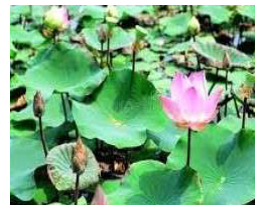


Fig 42. Showing *Nelumbo nucifera*



Fig 43. Showing *Phyllanthus emblica* L.



Fig 44. Showing *Physalis minima*



Fig 45. Showing *Piper betle*.



Fig 46. Showing *Polygonum plebeium*



Fig 47. Showing *Prunus avium*



Fig 48. Showing *Ricinus communis*



Fig 49. Showing *Saccharum officinarum*



Fig 50. Showing *Senna obtusifolia*



Fig 51. Showing *Senna tora*

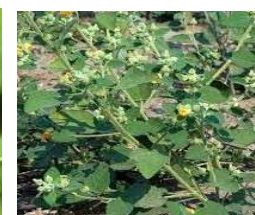


Fig 52. Showing *Sida cordifolia*

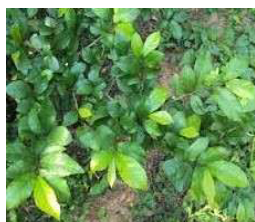


Fig 53. Showing *Streblus asper*

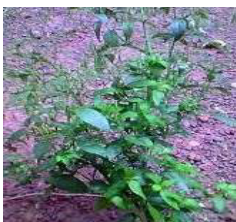


Fig 54. Showing *Swertia chirayita*



Fig 55. Showing *Tamarindus indica*



Fig 56. Showing *Terminalia bellirica*



Fig 57. Showing *Terminalia chebula*

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Fig 58. Showing *Trigonella foenum*



Fig 59. Showing *Zingiber officinale*



Fig 60. Showing *Ziziphus diphylla*.

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