



Investigation of herbals for the treatment of leucorrhoea from south west Bengal, India

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Abstract: Leucorrhoea is a very common problem among the female of reproductive age group particularly sexually active female but little research have been done in this area. It causes lot of discomfort, stress, weakness, tiredness, exhaustion, multiple aches, multiple somatic complaints and affect the sexual preferences. Due to the social stigma, the women do not disclose their gynaecological disorders even to their closest neighbours. They disclose their problems to the local herbal healers or practitioners only. Herbal healers treat these diseases using the plants which have immense medicinal potentiality. Up till now a little attention has been paid on documentation of medicinal plants used in the treatment of leucorrhoea from South West Bengal. An attempt has been made to collect the information from South West Bengal of India about the use of phytomedicine for the treatment of Leucorrhoea. The prescription of ethnomedicine were thoroughly interviewed and cross interviewed the local healers, patients, old and experienced tribal peoples regarding doses and administration. About 68 indigenous medicinal plants under 36 families of which 25 tree species, 8 shrub species and 35 herbaceous species have been recorded. The present investigation is an important thrust area to the society for the treatment of leucorrhoea and also helpful for the detailed account of the studied medicinal plant for future research to generate new phytochemicals and to formulate new bioactive compounds in the medical world.

Key words: Leucorrhoea; Traditional knowledge; Phytomedicine; South West Bengal.

INTRODUCTION

Leucorrhoea is a common disease among the women. It denotes a thick whitish and yellowish vaginal discharge. The amount of vaginal discharge may increase due to vaginal infection and due to sexually transmitted infections (STIs) and the discharge may disappear or reappear time to time.¹ The common causes of this disease are excessive coitus, abortion, high parity, lower socioeconomic status, poor hygiene, faulty dietary habits, excessive work load etc.^{2,3} This disease is associated with bodily complaints of weakness, tiredness, exhaustion, multiple aches and multiple somatic complaints.⁴ It may cause a lot of discomfort and stress, and even affect the sexual preferences and libido. It may be mild to severe, and varies from person to person. It is mainly two types: physiological and pathological. The Physiological leucorrhoea is due to the stimulation of oestrogen. The changes in the vaginal epithelium, changes in the normal bacterial flora and pH of the vaginal secretion predispose to the leucorrhoea.⁵ In pathological leucorrhoea different pathogens like *Trichomonas vaginalis*, *Neisseria gonorrhoeae*, *Candida albicans* are exclusively involved and some other potential agents like *Ureaplasma urealyticum*, *Chlamydia trachomatis*, candida-like organisms (CLO) and streptococci are responsible.⁶

Approximately 80% of world population in developing countries depends on traditional medicines for primary healthcare and in modern medicine too, nearly 25% are based on plant-derived drugs.⁷⁻⁸ Das et al. recorded the use of medicinal plants for the treatment of Gonorrhoea and syphilis in south West Bengal of India.⁹ However, no attention has been paid on documentation of plants used in the treatment of leucorrhoea.¹⁰ A little bit of work has been done in this direction in this region.¹¹

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Keeping this in view, the present study was initiated with an aim to identify medicinal plants resources and traditional knowledge of tribal and non-tribal people of South West Bengal, India to treat the leucorrhoea. A synoptic account of these medicinal plants with their species, family, parts used, approximate doses in possible cases and ethno-medicinal values to cure leucorrhoea has been prepared in the present investigation.

MATERIALS AND METHODS

In order to document the utilization of indigenous medicinal plants, a sample survey was carried out during the last five years (2009-2014) in different villages and forest areas of South West Bengal, India. The Survey was carried out throughout the year to cover all the seasons and to get maximum information. Repeated enquiries were made to understand their knowledge, methods of diagnosis and treatment of this disease. Data were collected on the specific parts of the plants used, collection, method of uses of the drugs, dosage administration. The information on medicinal uses of the indigenous plants have been described after gathering information from general local people, experienced aged rural folk, traditional herbal medicine practioners and local herbal drug sellers. Local elder, experienced tribal peoples, "Vaidyas" and "Ojhas" were interviewed and cross - interviewed following the questionnaire regarding doses and administration.¹²⁻¹⁴ The medicinal plants specimens were collected and identified with the help of authentic specimens, books, journals, floras and revisions¹⁵⁻²⁶ and documented in the herbarium of Dept. of Botany, Raja N.L. Khan Women's College and Up-to-date author citation²⁷ was followed.

RESULTS AND DISCUSSION

The present paper deals with 68 plants species under 36 families of which 25 species belong to trees, 8 species belong to shrubs and 35 are herbs (Table 1). From the tree species the bark, leaves, seeds and roots were used. In case of herbs species the whole plant was used. The treatments do not cause any sides affects. The plants are used either solely or in combination with other plants. The mode of preparation and administration was very easy and suitable. This knowledge was fully dependant on trial and error methods by the local healers and was disseminated verbally from one generation to another. This traditional knowledge was confined to few families of the area within 'Vaidyas' and 'Ojhas'. They generally diagnose the disease based on symptoms told by the patients as well as based on their personal experience in treating human ailments. The methods of preparation of herbal medicine fall into four categories, like plant parts applied as paste, juice extracted from various plants parts, decoction of plant parts mixed

with water and other liquids; and powder made from different plant parts.¹¹

Medicines are taken orally directly or mixed with water, milk, honey, black pepper etc. It was observed during the course of survey that most of the medicines were administered in empty stomach early in the morning and period of treatment varies from 7 to 21 days in most of the cases. Doses were measured generally in teaspoonful which varies from patient to patient depending on their age, physical health conditions and several other factors. The healers generally do not cultivate the medicinal plants but solely depend on forest based resources. The healer's concept was purely morphological but there was no biochemical and pathological experimental information. Hence, the present study will be helpful for future phytochemical and pharmacological screening to formulate different potent drugs.

Table 1: Medicinal plants used for the treatment of leucorrhoea

S. No.	Scientific name	Habit	Family	Parts used	Mode of application
1	<i>Abelmoschus esculentus</i> (L.) Moench	Herb	Malvaceae	Seed less fruit	Seed less fruit taken orally with sugar.
2	<i>Abutilon indicum</i> L.	Herb	Malvaceae	Root	Root powder taken.
3	<i>Acacia farnesiana</i> (L.) Willd.	Tree	Mimosaceae	Pods	Decoction of pods is used.
4	<i>Acacia nilotica</i> Delile	Tree	Mimosaceae	Leaves, Bark, Gum	Paste of 10 gm gum and two leaves taken with cow's milk. Bark used in the form of decoction for a vaginal douche.
5	<i>Adhatoda vasica</i> Nees	Shrub	Acanthaceae	Root bark	Root bark juice is taken with honey and drunk twice daily for few days.
6	<i>Aegle marmelos</i> (L.) Corr. Serr.	Tree	Rutaceae	Leaves	Paste prepared with leaves taken orally with milk.
7	<i>Ageratum conyzoides</i> L.	Herb	Asteraceae	Leaves	Leaves paste directly applied on vagina once in a day for one week.
8	<i>Allium sativum</i> L.	Herb	Liliaceae	Bulb	One bulb covered by cotton cloth inserted on vagina for one hour daily for 18 - 20 days.
9	<i>Amaranthus spinosus</i> L.	Herb	Amaranthaceae	Roots	Fresh juice of the root (two teaspoon full) is slightly warmed and is given twice daily.
10	<i>Asparagus racemosus</i> Wild.	Herb	Liliaceae	Root	Root paste mixed with the root paste of Ankar (<i>Alangium salvifolium</i>), Palash (<i>Butea monosperma</i>), Amlaki (<i>Emblica officinalis</i>), Ramdantan (<i>Smilax zeylamica</i>) and make a common paste which is given for continuous 21 days early in the morning.
11	<i>Banbinia malabarica</i> Roxb.	Tree	Caesalpiniaceae	Bark	The stem bark and root bark decoction used with the paste of black peppers (3:1) for the treatment.
12	<i>Banbinia purpurea</i> L.	Tree	Caesalpiniaceae	Bark	Bark juice with honey taken orally.
13	<i>Boerhaavia diffusa</i> L.	Herb	Nyctaginaceae	Whole plant	Decoction of plant (15ml) is given once a day in the early morning for fifteen days.
14	<i>Bombax ceiba</i> L.	Tree	Bombacaceae	Root	Paste of fleshy roots of young plant mixed with unboiled cow milk (1:2) and then mixed with the paste of seven long peppers.
15	<i>Butea monosperma</i> (Lam.) Taub.	Tree	Fabaceae	Bark, Flower, Gum	Powder of plant parts mixed with adequate water given early in the morning for 15 days.
16	<i>Catharanthus roseus</i> (L.) G. Don	Herb	Apocynaceae	Leaves	Leaves juice (5 ml) mixed with honey given in the early morning for continuous 7 days once a day.
17	<i>Clerodendrum viscosum</i> Vent.	Herb	Verbenaceae	Root, Leaves	Two spoonful paste along with water are administered for continuous 10-15 days.
18	<i>Clitoria ternatea</i> L.	Herb	Fabaceae	Root	One tea spoonful root paste with black pepper (<i>Piper longum</i>) mixed in water taken in the morning.
19	<i>Cocculus hirsutus</i> (L.) Diels	Herb	Menispermaceae	Leaves	Leaf is crust and placed under sunlight, the extract is swallowed orally.
20	<i>Cocos nucifera</i> L.	Tree	Arecaceae	Carnel, Liquid endosperm, Young bud	The carnel in the form of paste mixed with cow milk is taken. A juice is made up with liquid endosperm, powder of sandal (<i>Santalum album</i>) and cumin (<i>Cuminum cyminum</i>) and taken orally. The young bud is taken orally.
21	<i>Commiphora wightii</i> (Arnott.) Bhandaris	Shrub	Burseraceae	Latex	The latex is mixed with honey and swallowed orally.
22	<i>Curculigo orchioides</i> Gaertn.	Herb	Amaryllidaceae	Roots	Roots are used as tonic and aphrodisiac in leucorrhoea.

23	<i>Cuscuta reflexa</i> Roxb.	Herb	Convolvulaceae	Whole plant	Plant extract is applied on vaginal epithelium to remove the bacterial flora.
24	<i>Cynodon dactylon</i> (L.) Pers.	Herb	Poaceae	Whole plant	Fresh juice of whole plant along with honey drunk thrice daily for few days.
25	<i>Dalbergia sissoo</i> Roxb	Tree	Fabaceae	Leaves tender	Tender leaves as paste taken with misri and milk. Dry fruit is made into powder. One spoon of the powder mixed with honey (1:1) is given twice daily.
26	<i>Embelica officinalis</i> Gaertn.	Tree	Euphorbiaceae	Fruit	Fruit juice mixed with honey and drunk in morning in empty stomach for few days. Fruit pulp mixed with Tribulus fruit powder and taken with honey
27	<i>Euphorbia hirta</i> L.	Herb	Euphorbiaceae	Whole plant	Decoction taken orally.
28	<i>Feronia elephantum</i> Corr.	Tree	Rutaceae	Leaves	5 ml leaf juice mixed with honey is given once a day for 15-20 days used.
29	<i>Ferula foetida</i> L.	Herb	Umbelliferae	Latex	Latex mixed with ghee, goat milk and honey and taken once daily for few days.
30	<i>Ficus benghalensis</i> L.	Tree	Moraceae	Whole plant	Bark powder directly use on vagina. Roots and latex are also used.
31	<i>Ficus hispida</i> L. f.	Tree	Moraceae	Ripe fruit	Dried ripe fruit powder along with sugar taken once daily for few days.
32	<i>Ficus religiosa</i> L.	Tree	Moraceae	Root	Juice of root bark is used.
33	<i>Gossypium barboreum</i> L.	Shrub	Malvaceae	Root	Root juice along with honey drunk twice daily for 2-3 months.
34	<i>Hemidesmus indicus</i> (L.) R. Br.	Herb	Asclepiadaceae	Root	Root juice with cow milk taken orally
35	<i>Hibiscus rosa-sinensis</i> L.	Shrub	Malvaceae	Leaves, Flower	Leaves paste used externally. Paste of 3 - 4 fresh flowers along with goat milk and drunk once in a day for 15 days.
36	<i>Justicia adhatoda</i> L.	Shrub	Acanthaceae	Root	Paste of roots used externally.
37	<i>Lagenaria siceraria</i> (Mol.) Standley	Herb	Cucurbitaceae	Fruit	Fresh fruit is taken with cow's milk twice daily.
38	<i>Lawsonia inermis</i> L.	Shrub	Lythraceae	Root, Bark	Root and bark decoction is given. Decoction of stem bark along with black Pepper is given to women continuously for 21 days in empty stomach.
39	<i>Mangifera indica</i> L.	Tree	Anacardiaceae	Root, Stem, Leaves, Flower, Seed	One tablet prepared by mixing stem bark, leaves and flowers in equal quantity is put into vagina daily for two weeks. Seed powder is also beneficial in leucorrhoea.
40	<i>Mirabilis jalapa</i> L.	Herb	Nyctaginaceae	Root	Root paste applied externally.
41	<i>Mucuna pruriens</i> (L.) DC.	Herb	Fabaceae	Seed	A pill prepared from powdered seeds boiled with cow milk mixed with Kamraj root dust, sugar and honey and given to cure leucorrhoea.
42	<i>Nelumbo nucifera</i> Gaertn.	Herb	Nymphaeaceae	Rhizome.	About 15 ml decoction of rhizomes of white flowered plant is taken by women in empty stomach for fifteen days.
43	<i>Phylla nodiflora</i> (L.) Greene	Herb	Verbenaceae	Whole plant	Whole plant decoction applied on vaginal epithelium.
44	<i>Phyllanthus fraternus</i> Webster	Herb	Euphorbiaceae	Whole plant	Plant juice drunk once daily for few days.
45	<i>Pterocarpus marsupium</i> Roxb.	Tree	Fabaceae	Bark	Paste of bark (1 tea spoonful) mixed with honey used to cure leucorrhoea of women.
46	<i>Pterospermum acerifolium</i> Willd.	Tree	Sterculiaceae	Flower	Flower tonic is useful.
47	<i>Punica granatum</i> L.	Tree	Punicaceae	Flower	Fine paste of 2-3 flowers mixed with white sandal powder and hot milk, drunk twice daily.
48	<i>Putranjiva roxburghii</i> Wall.	Tree	Euphorbiaceae	Seeds	Paste from seeds applied externally on vaginal epithelium.
49	<i>Raphanus sativus</i> L.	Herb	Brassicaceae	Roots	Root decoction is good for the treatment.
50	<i>Saraca asoca</i> (Roxb.) de Wilde	Tree	Caesalpiniaceae	Bark	Bark powder mixed with hot water and drunk twice daily for five days.
51	<i>Senna tora</i> (L.) Roxb.	Herb	Caesalpiniaceae	Areal part	Fine paste of plant applies directly on vagina for few days.
52	<i>Sida acuta</i> Burm. f. emend. K. schum.	Herb	Malvaceae	Seed	Seed dust (1 tea spoonful) mixed with water is given 7-10 days continuously.
53	<i>Sida cordifolia</i> L.	Herb	Malvaceae	Root	Root decoction with paste of black peppers (5:2) taken with milk and sugar
54	<i>Sida rhombifolia</i> L.	Herb	Malvaceae	Root	Root paste (1 tea spoonful) mixed with milk given once a day for 21 days.
55	<i>Smilax zeylanica</i> DC.	Herb	Liliaceae	Whole plant	2-3 gram of dried powdered plant material is recommended three times a day for 8-10 days.
56	<i>Solanum indicum</i> L.	Herb	Solanaceae	Fruit	Paste of raw fruit directly applies on the vagina for few days.
57	<i>Spondias pinnata</i> Kurtz.	Tree	Anacardiaceae	Wood	Wood powder applied externally.
58	<i>Syzygium cumini</i> (L.) Skeels	Tree	Myrtaceae	Root	10 ml of root juice along with milk and honey drunk after meal at night daily for one month.
59	<i>Terminalia arjuna</i> (Roxb. ex DC.) Wight & Arn.	Tree	Combretaceae	Stem bark	25 ml water extract of bark mixed with 10 ml turmeric juice and drunk every morning in empty stomach for few days.
60	<i>Terminalia chebula</i> Retz.	Tree	Combretaceae	Fruit	Dried fruit powder is used.

61	<i>Tinospora cordifolia</i> (Willd.) Hook. f & Thomson	Tree	Menispermaceae	Stem	Stem powder mixed with wheat flour and then roasted with butter is recommended.
62	<i>Trapa natans</i> L. var. <i>bispinosa</i> (Roxb.) Makins	Herb	Trapaceae	Fruit	Powder taken orally with sugar.
63	<i>Triumfetta rhomboidea</i> Jacq.	Herb	Tiliaceae	Root powder	Root powder used externally.
64	<i>Vernonia cinerea</i> (L.) Less.	Herb	Asteraceae	Whole plant	The Juice of the plant (two teaspoonfuls) is given for 15 days.
65	<i>Vigna mungo</i> (L.) Hepper	Herb	Fabaceae	Seed	Powder taken orally.
66	<i>Woodfordia fruticosa</i> (L.) Kurtz	Shrub	Lythraceae	Flowers	Decoction of flowers taken orally.
67	<i>Xanthium indicum</i> L.	Herb	Asteraceae	Aerial parts	The extract from aerial plant parts taken orally.
68	<i>Zizyphus mauritiana</i> Lam.	Shrub	Rhamnaceae	Seed	Pastes of seeds are used externally.

CONCLUSION

The present study focused mainly on the rural women's health and treatment as they are deprived off the modern medical facilities and they are generally less conscious about their health. The herbals are the best alternative and like the supernatural blessing to the very poor women of the villages but the women do not know which plants are essential for the treatment of leucorrhoea. For that reason they have to go to the local traditional healers for the treatment of this disease. If proper documentation, cultivation procedure and dosages administration of these medicinal plants are done and focused in a very lucid way to the village women it will be better for their own treatment. As there was no past scientific report regarding antimicrobial and phytochemical analysis of the recorded medicinal plants greater effort should be given on the indigenous practice right now. In this situation our investigation is much more appropriate to initiate the investigation in this direction. We hope future detail research work will open a new vistas for the formulation of new bioactive compounds in medical world for the treatment of leucorrhoea.

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REFERENCES

- Kumar N, Choya R. Ethnobotanical notes on some plants used for the treatment of leucorrhoea and other gynecological problems in Hamirpur district of Himachal Pradesh. *Indian J Fundam Appl Life Sci* 2.4 (2012):126-33.
- Kulkarni RN, Durge PM. A study of leucorrhoea in reproductive age group women of Nagpur City. *Indian J Public Health* 49.4 (2005):238-239.
- Tewiri PV, Neelam, Kulkiro MK. A study of lukol in leucorrhoea, pelvic inflammatory diseases and dysfunctional uterine bleeding. *Anc Sci Life* 21.2 (2001):139-149.
- Chaturvedi SK. Abnormal illness behaviour and somatisation due to leucorrhoea. *Psychopathology* 26.3-4 (1993):170-172.
- Tabassum K, Begum S, Rais N, Zulkifl. Analysis of Leucorrhoea manifestations an observational case study. *IJHM* 2.2 (2014): 23-6.
- Chaudhuri M, Chatterjee BD, Banerjee M. A clinicobacteriological study on leucorrhoea. *J Indian Med Assoc* 96.2 (1998):46-50.
- World Health Organization. WHO Traditional Medicine Strategy 2002–2005. Geneva: *World Health Organ* (2002).
- Tripathi G. Indigenous Knowledge and Traditional Practices of Some Himalayan Medicinal Plants. In: Samant SS, Dhar U, Palni LMS (eds). *Himalayan Medicinal Plants Potential and Prospects*. Nainital: *Gyanodaya Prakashan* (2002); 151–156.
- Das DC, Sinha NK, Chattopadhyay JC, Das M, Samanta P. The use of Medicinal Plants for the treatment of Gonorrhoea and Syphilis in South West Bengal of India. *Int J Phytomed* 5.1 (2013):14-17.
- Rana CS, Ballabha R, Sharma A, Dangwal LR, Tiwari JK. Herbal remedies for leucorrhoea: A study from the Garhwal Himalaya, India. *Global J Res Med Plants Indigen Med* 2.10 (2013): 685–91.
- Das DC, Sinha NK, Das M. The use of medicinal plants for the treatment of gynaecological disorders in the Eastern parts of India. *Indian J Obstet Gynaecol Res* 2.1 (2015):16-27.
- Dwivedi SN, Satyaendra S, Dwivedi S, Dwivedi A, Dwivedi S, Kaul S. Relevance of medicinal herbs used in traditional system of medicine. *Farmavita Net* (2007).
- Shukla R, Chakravarty M, Gautam MP. Indigenous medicine used for treatment of gynecological disorders by tribal of chhattisgarh, India. *J Medicinal Plant Res* 2.12 (2008):356-360.
- Pullaiah T, Murthy KSR, Goud PSP, Kumar TDC, Vijayakumar R. Medicinal plants used by the tribals of Nallamalais, Eastern Ghats of India. *J Tropical Medicinal Plants* 4.2 (2003):237-244.
- Satyavati GV, Gupta AK, Tandon N. Medicinal Plants of India. New Delhi: *Indian Council of Medical Research* (1987).
- Bentham G, Hooker JD. *Genera Planterum. Volume 1-3*. London: *Lovell Reeve & Co* (1862-1883).
- Prain D. Bengal Plants. Volume 1 & 2. Dehra Dun: *Bishen Singh Mahendra Pal Singh* (1903).
- Rekka R, Muruges S, Prabakaran R. Plants used by Malayali Tribes in Ethnogynaecological disorders in Yercaud hills, Southern Eastern Ghats, Salem District, Tamil Nadu. *Sci Res Report* 3.2 (2013):190-192.
- Sanyal MN. Flora of Bankura District. Dehra Dun: *Bishen Singh Mahendra Pal Singh* (1994).
- Samanta AK, Das DC. Ethnobotanical studies of Typha elephantina Roxb. (Typhaceae) in Southern parts of West Bengal, India. *J Eco Taxon Bot* 27.3 (2003): 576-579.

21. Pal DC, Jain SK. Tribal Medicine. Kolkata: *Naya Prakash* (1998).
22. Paria ND, Chattopadhyay SP. Flora of Hazaribagh District, Bihar. *Volume 1*. Calcutta: *Bot Survey of India* (2000):1-547.
23. Paria ND, Chattopadhyay SP. Flora of Hazaribagh District, Bihar. *Volume 2*. Calcutta: *Bot Survey of India* (2005): 548-1299.
24. Paria ND. Medicinal plant resources of South West Bengal. Volume 1&2. Kolkata: *Directorate of Forest, Govt. of West Bengal* (2005).
25. Behara KK. Plants used for gynecological disorders by tribals of Mayurbhanj district, Orissa, India. *Ethobotanical Leaflets* 10 (2006): 129.138.
26. Jain SK, Rao RR. A Handbook of Field and Herbarium Methods. New Delhi: *Today and Tomorrow's Printers and Publishers* (1977).
27. Brummitt RK, Powell CE. Author of Plant Names. Kew: *Royal Botanic Garden* (1992).

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