



FOREST RESOURCES, ETHNOMEDICINE, AND THE VITAL ROLE OF TRIBAL WOMEN OF AUSGRAM, BURDWAN DISTRICT: A STUDY OF INDIGENOUS KNOWLEDGE AND CHALLENGES.

Ranjan Paul

Assistant Professor in Botany, Gushkara Mahavidyalaya

ABSTRACT

Forests, as renewable natural capital, are integral to the environmental resource-based economy, contributing significantly to biodiversity conservation, climate change mitigation, and the provision of raw materials. Traditional values associated with forests have gained renewed importance in the modern era, particularly in ethnomedicine. This study explores the crucial role of tribal women as custodians of indigenous knowledge, focusing on their contributions to healthcare through the sustainable use of medicinal plants. Tribal women preserve and transmit ethnobotanical knowledge, preparing remedies from various plant parts to treat ailments. Despite their indispensable contributions, challenges such as deforestation, biodiversity loss, and the encroachment of modern medicine threaten this heritage.

The paper examines the ethnomedicinal practices of tribal communities, particularly in the Burdwan region, which is rich in both plant biodiversity and ethnic diversity. It highlights the use of medicinal plants in treating women-specific diseases, the preparation and dosage of traditional medicines, and the cultural significance of forest preservation. Furthermore, it addresses the erosion of traditional knowledge due to forest resource depletion and sociocultural changes. This study underscores the need to document and integrate ethnomedicinal practices into contemporary healthcare while promoting the sustainable utilization of forest resources.

KEYWORDS: Ethnomedicine, Tribal Women, Medicinal Plants, Indigenous Knowledge

INTRODUCTION

Forest, as an important renewable natural capital contributes significantly to the environmental resource based economy. Forest occupies a special place in the life and thought of the people (Mahapatra, 2012). They provide raw materials, maintain biodiversity, and protect land and water resources and play a role in climate change mitigation. The age-old traditional values attached with the various forest types and the varieties of forest products (i.e. medicinal plants) have gained tremendous importance in the present century (Kala et al, 2006). Plant and plant extracts found in the forests are traditionally used by the tribal peoples as the old Indian Systems of Medicine (ISM). Thirty (30%) percent of ISM preparations are derived from roots, 14% from bark, 16% from whole plants, 5% from flowers, 10% from fruits, 6% from leaves, 7% from seeds, 3% from wood, 4% from rhizomes, and 6% from stems, fewer than 20% of the plants used are cultivated (Akerela, O 1988)

In India, the native people exploit a variety of herbals for effective treatment of various ailments. The plant parts used, preparation, and administration of drugs vary from place to place (33 Verma AK, et al 2007). Indigenous knowledge is as old as human civilization, but the term ethnobotany was coined by an American botanist, John Harshburger, 1896 [15], who understood the term to mean the study of the plants used by primitive and aboriginal people. At a time when ecological degradation and deforestation have been taking place at an alarming rate throughout the globe, in India thousands of pockets of natural vegetation scattered throughout the country

are preserved almost in pristine condition [Kesari,et al, (2005);, Khanna, A. K., et al, (2002), Kubo, I., et al, (2004)]. The taboos, festivals, rituals and other cultural aspects of tribal peoples are closely related with the surrounding vegetation preserved on religious ground. Until today there is a custom in vogue to protect the sacred plants by tying thread surrounding the trunk or putting flags near it in many tribal groups of people. All over the world the indigenous people have protected the biodiversity with which they have symbiotic relationship [Jorim et al (2012)]. Mainly the Tribal women play a vital role in the preservation, practice, and transmission of ethnomedicine—a traditional system of healthcare that relies on indigenous knowledge of natural resources, including plants, animals, and minerals. As custodians of ancestral knowledge, they bridge the gap between cultural heritage and community health, ensuring that centuries-old healing practices continue to benefit future generations. In tribal communities, women are often the primary caregivers and healthcare providers. They acquire knowledge of medicinal plants and their applications through oral traditions passed down by elders. This ethnobotanical wisdom includes identifying plants, understanding their seasonal availability, and preparing remedies for a variety of ailments. Tribal women are adept at creating herbal formulations, such as decoctions, poultices, and oils, which address everything from minor injuries to chronic conditions.

It has been an undeniable fact that the knowledge of indigenous people is invaluable in the present day context of biological diversity conservation and its sustainable utilization [Thurstan

Shaw et al (1994), Kambizi, L. et al, (2008)]. Medicinal plants are an important therapeutic aid for various ailments. Scientific experiments on the antimicrobial properties of plant components were first documented in the late 19th century [Samy, R.P. et al, (2000)]. In India, from ancient times, different parts of medicinal plants have been used to cure specific ailments. For example, the use of cranberry juice (*Vaccinium macrocarpon*) to treat urinary tract infections is reported in different manuals of phytotherapy, while species such as lemon balm (*Melissa officinalis*), garlic (*Allium sativum*) and tea tree (*Melaleuca alternifolia*) are described as broad-spectrum antimicrobial agents (Van Etten, et al, 1995):

Burdwan, mainly these two blocks are very rich in plant biodiversity as well as in ethnic diversity and has a great traditional knowledge base in plant resources because there is a wide range of forestry and it is inhabited by the largest number of tribes and they lead an intricate life totally dependent on forest plants. Although the floristic and ethno medicinal investigation have been done by various workers from different districts of India [Ambasta, S.P.(1986), Hajra, et al (1981), Jain, S.K.(1991), Majumdar, et al,(1971)] the information on plants used for different disease control particularly by these peoples who live in these blocks is meager. Despite their crucial role, tribal women face numerous challenges. Modernization, deforestation, and loss of biodiversity threaten the natural resources they rely on for healing. Additionally, the encroachment of allopathic medicine and lack of formal recognition of their skills often marginalize their contributions.

The present work will also concentrate on the alternative medicines used by the tribal's on various diseases of tribal women. In the present study, few medicinal plants which are used as medicine in various female disease by the local tribal and also search their parts used by them as medicine, the dosage of those folk medicine. On the other side the study will focus the gradual diminishing effect on the knowledge of ethno medicine due to declining of forest resources as well as the ethno socio cultural attributes of the tribal peoples in the forest areas.

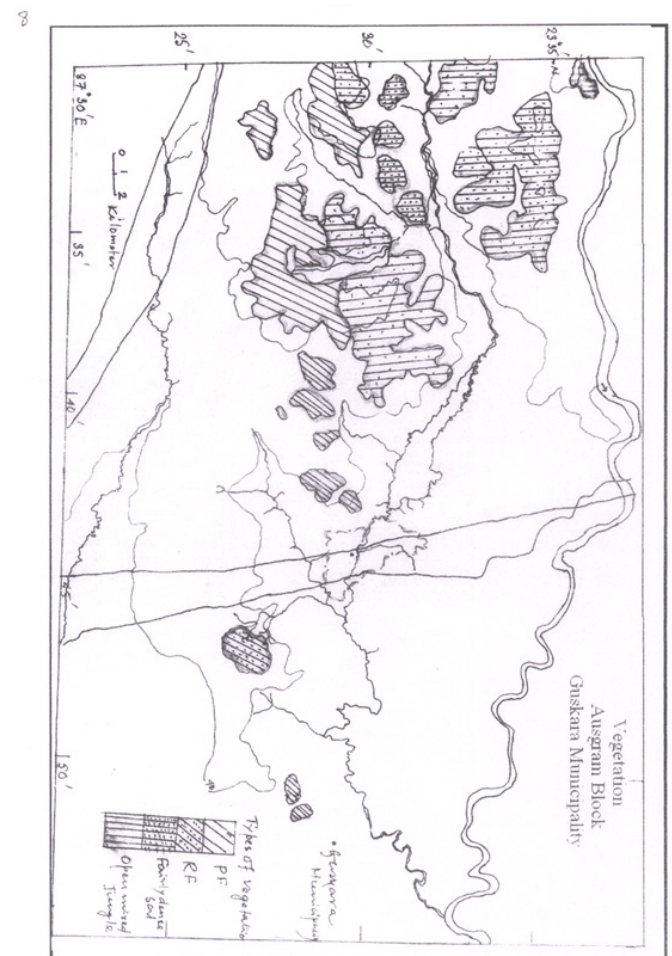
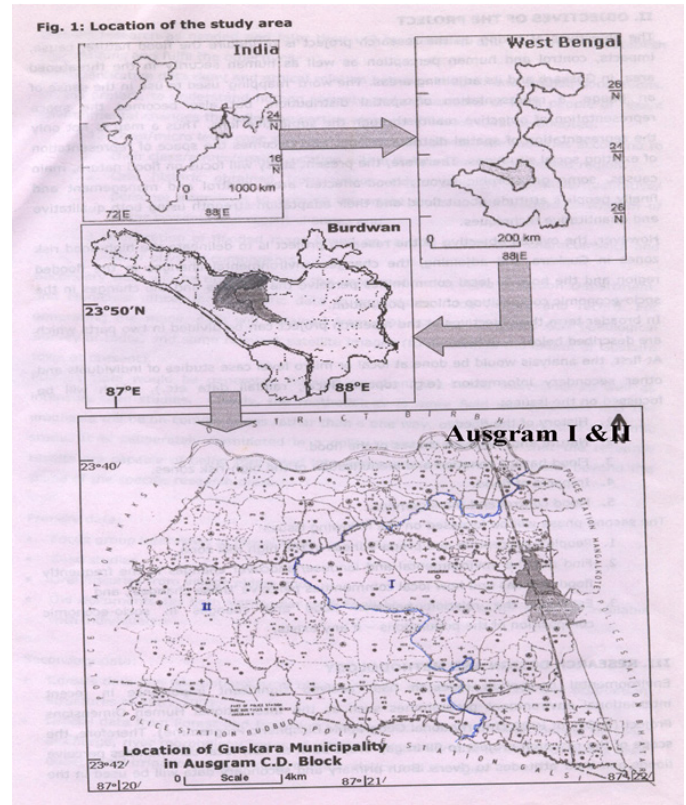
Study area:

The study area lies in the north western part of Burdwan district, West Bengal covering area of (Map enclosed) 8264 hectares and is enclosed within latitude 23°42'-23°40'

(73M/10, 73M/11, 73M/14, 73M/15). The area rich in vegetation, and some major forest patches have enriched biodiversity in the environment. The forest areas are part of Jangalmahal extended from Birbhum district to Burdwan district. The area located midst of two rivers Ajoy, flowing in the north, the Damodar, in the south Barakar on west, and two rivers controlling the middle part, that are Kunur and Khari.

Based on lateritic utisols soils and hydrological system by the immense rivers the total area predominated by large patches of forest areas under Preserve forest (PF) Reserve forest (RF) Fairly dense sal open mixed jungle (Vegetation Map enclosed)

Physically, the area is a flattened land nearly 40 meters height from mean sea level. Typical subtropical climate and lateritic soil helps in the growth of large areas of forest patches in the said areas.



METHODOLOGY

The study is built upon both primary and secondary information and we would try to combine the quantitative and qualitative approaches in innovative ways. Primary data would be generated through collection and identification of the forest species, through questionnaire based interviews as well as intensive case studies clearly, the methodology is field survey based and the emphasis is on conversation rather than a one-way observation oriented academic study. It is deliberately formulated in a policy-oriented manner so that the research results are capable of being translated into action and may even be useful beyond the scope of the specific project.

Objective:

- The overall objectives of the study is to assess tribal livelihood, ethno social and cultural values towards forest from the view point economic activities, changing pattern of their occupation with deforestation, finally identify some valuable medicinal plants used by the local inhabitants which have medicinal and economic values in Women specific disease. An ethnobotanical survey to collect information about indigenous medicine through questionnaire and personal interviews, through intensive field survey.
- Identification of the plants.
- Identification of the plant parts used as medicine.
- Enumeration of the plants with their scientific name, vernacular name, parts used, dose and their medicinal importance.

RESULT AND DISCUSSION

Deforestation and Afforestation Trends

Overlay analysis of land-use patterns in Burdwan district from

1961 to 2006 highlights significant changes in forest cover. Between 1961 and 1991, deforestation accounted for 24%, followed by an 18% afforestation effort from 1991 to 2000. However, this was reversed between 2000 and 2006 with a further 9% deforestation. Over the entire period (1961–2006), a net decrease of 15% in forest cover was observed (Gupta, S et al, 2009). Similar trends were noted in Ausgram Jangalmahal, indicating consistent pressures on forest ecosystems.

The nature of vegetation in these areas also underwent changes. The lateritic and red soils, more conducive to the growth of Sal trees, are less suitable for certain afforested plants like Eucalyptus and Sonajhuri (*Acacia auriculiformis*). While fast-growing species like Eucalyptus have been preferred for afforestation, their high water requirements and adverse effects on undergrowth vegetation raise ecological concerns. This undergrowth serves as a vital resource for medicinal plants, heavily relied upon by local tribal communities for traditional healthcare practices (Ghosh Sandipan et al, 2013).

Role of Medicinal Plants in Tribal Healthcare especially in women specific disease.

Ausgram is home to tribal communities such as the Santhal, Oraon, Munda, and Lodha, whose lives are deeply intertwined with local ecosystems. Their traditional knowledge encompasses the use of medicinal plants for treating women's health issues, including menstrual disorders, infertility, pregnancy complications, and postnatal care.

A comprehensive list of 32 medicinal plants, their applications, and their effectiveness for women's ailments was identified.

S. No.	Plant Name (Scientific)	Local Name	Family name	Part Used	Application in Women's Ailments
1	<i>Calotropis gigantea</i> L. Br. ex. Ait.	Akanda	Apocynaceae	Root	Root decoction is prescribed to women at childbirth to reduce labor pain.
2	<i>Embolia officinalis</i>	Amla	Phyllanthaceae	Fruit	Prevents anemia during pregnancy and improves overall reproductive health.
3	<i>Oxalis corniculata</i> L.	Amrul	Oxalidaceae	Leaf	An infusion of the leaves is used to treat in duration of the breasts and watery vaginal discharges.
4	<i>Terminalia arjuna</i>	Arjun	Combretaceae	Bark	Strengthens uterine muscles and is used for menstrual regulation.
5	<i>Saraca asoca</i>	Ashoka	Fabaceae	Bark	Bark decoction is consumed to regulate menstrual cycles and alleviate heavy bleeding and uterine disorders.
6	<i>Malachra capitata</i> Linn.	Bon dheros	Malvaceae	Fruits	Raw fruits daily given to patient during menstrual period for three months to treat infertility.
7	<i>Crotalaria prostrata</i> Roxb.	Chhoto jhunjhuni, Nari Sakoe	Fabaceae	Whole plant	the crushed plant preparation is prescribed to women just after childbirth to prevent weakness
8	<i>Cinnamomum zeylanicum</i> Breyn	Daruchini	Lauraceae	Bark	2 gm bark of Daruchini and 2 gm root of Anantamul is boiled in a glass of cow milk administered orally once a day for 7 days to the problem of miscarriage.
9	<i>Datura stramonium</i>	Dhutara	Solanaceae	Seeds, Leaves	Seeds or leaves are used in extreme cases; however, this is highly toxic
10	<i>Euphorbia hirta</i>	Dudhi	Euphorbiaceae	Whole Plant	Decoction is used to stimulate uterine activity.
11	<i>Euphorbia fusiformis</i>	Dudhmul	Euphorbiaceae	Root	Fresh root stocks are boiled and administered up to 20 gram once daily for 7 days in poor lactation (Mondal Swarnendu et al,2012)
12	<i>Trigonella foenum-graecum</i>	Fenugreek (Methi)	Fabaceae	Seeds	Promotes lactation and improves postnatal recovery.
13	<i>Atylosia scarabaeoides</i> (L.)	Gaisani, Pirikurti	Fabaceae	Root / Whole plant	The whole plant or the roots are being crushed and prescribed for vitality to the mothers after childbirth. (Saha Anshuman et al,2012)

14	Hiptage benghalensis L. (Kurz.)	Gorunda, Madhulata	Malpighiaceae	Whole plant	Water-boiled plant decoction is administered orally in case of weak mothers after childbirth.
15	Abrus precatorius	Gunja	Fabaceae	Seeds, Leaves	Seeds or leaf extracts are used in small doses to induce abortion.
16	Curcuma longa	Haldi (Turmeric)	Zingiberaceae	Rhizome	Reduces inflammation during menstrual cramps and improves reproductive health.
17	Dolichos biflorus L.	Hoe, Kuthi	Fabaceae	Plant	the crushed plant preparation is prescribed to women just after childbirth to prevent weakness.
18	Hibiscus rosa sinensis L.	Jaba	Malvaceae	Leaf & Bud	4/5 floral buds and leaves are crushed with water and mixed with molasses and are taken in every morning for seven days during menstruation to cure menstrual disorder.
19	Phyllanthus nodiflorus (L.) Greene	Jalapipla	Verbinaceae	Root	Decoction of root (3 ml) with unboiled egg (2 mg) is taken by women to promote sexual desire. (Mondal Sunanda et al, 2011)
20	Catharanthus roseus (L.) Don.	Nayantara	Apocynaceae	Leaf	2 spoonful of leaf extract with 2 spoonful of root extract of Withania somnifera are mixed and the mixture is taken for 15 days to control menstrual disorders.
21	Azadirachta indica	Neem	Meliaceae	Leaves	Used as an antiseptic wash for vaginal infections and to treat leucorrhea.
22	Vitex negundo	Nirgundi	Lamiaceae	Leaves	Relieves menstrual pain and treats irregular menstrual cycles.
23	Piper betle	Pan	Piperaceae	Root	Roots of Piper are used in abortion
24	Carica papaya	Pepe	Caricaceae	Unripe Fruit	Consuming unripe papaya stimulates uterine contractions.
25	Boerhavia diffusa	Punarnava	Nyctaginaceae	Root, Leaves	Decoction of the whole plant (15 ml) is given once a day in the morning for fifteen days for the treatment of leucorrhoea. (Mondal Sunanda et al, 2011)
26	Ricinus communis	Reri	Euphorbiaceae	Oil from Seeds	Oil is consumed to stimulate uterine contractions.
27	Ruta graveolens	Rue	Rutaceae	Leaves, Flowers	Leaves are consumed as an infusion to induce abortion.
28	Moringa oleifera	Sajina	Moringaceae	Leaves, Pods	Enhances milk production in lactating mothers and improves nutritional status during pregnancy.
29	Asparagus racemosus	Shatavari	Asparagaceae	Root	Enhances fertility, supports lactation, and balances female hormones.
30	Clitoria ternatea Linn	Swet aparajita	Fabaceae	Root	Drink 1 teaspoonful of root juice along with Rabin(Piper nigrum Linn.) for 20 days to treat the problem of infertility
31	Mimosa pudica Linn.	Swet Lajjaboti	Mimosaceae	Root	One teaspoonful root juice along with Rabin(Piper nigrum Linn.) for 20 days to treat the infertility
32	Borassus flabellifer L	Tala	Arecaceae	Male inflorescence	Ash of male inflorescence (after burning of male inflorescence) with powder of black pepper (Piper longum) and cow milk in the ratio 2:1:1 is used by the women as contraceptive. (Mondal Sunanda et al, 2011)

Observations from the Chart

1. Roots as a Primary Resource:

Roots are the most frequently used plant part in traditional medicine. This prominence reflects the roots' role as repositories of concentrated nutrients and bioactive compounds, often extracted to treat ailments such as menstrual disorders, fertility issues, and postpartum recovery.

2. Leaves as Versatile Medicinal Agents:

Leaves rank high in usage frequency, highlighting their accessibility and versatility. Traditional practices commonly involve preparing decoctions or infusions from leaves to treat menstrual pain, leucorrhea, and infections.

3. Bark and Whole Plants:

Bark is specifically noted for its use in uterine and menstrual health, as seen in plants like Saraca asoca and Terminalia arjuna. The entire plant is used in several cases, emphasizing holistic utilization in remedies like those derived from Atylosia scarabaeoides and Hiptage benghalensis, often prescribed for general vitality and postpartum weakness.

4. Fruits and Seeds:

Fruits, such as Emblica officinalis (Amla), are rich in vitamins and minerals, aiding in conditions like anemia during pregnancy. Seeds, as seen in Trigonella foenum-graecum (Fenugreek), are

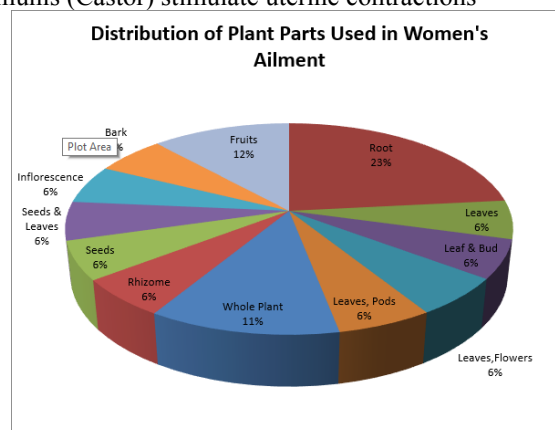
used for lactation promotion and postnatal recovery.

5. Rhizomes and Pods:

Rhizomes, such as Curcuma longa (Turmeric), are valued for their anti-inflammatory properties, especially for menstrual cramps and reproductive health. Pods, as in Moringa oleifera, are nutrient-dense and used to enhance lactation and nutritional status.

6. Rarely Used Parts:

Less commonly used parts, like flowers and oils, are targeted for specific needs. For instance, Ruta graveolens (Rue) flowers are used to induce uterine activity, while oils from Ricinus communis (Castor) stimulate uterine contractions



Challenges to Traditional Practices

Despite their cultural and medicinal importance, traditional practices face challenges:

- **Modernization and Loss of Interest:** Younger generations show declining interest in indigenous knowledge, risking its gradual disappearance.
- **Ecological Imbalances:** Unsustainable harvesting and the preference for non-indigenous afforestation species threaten the availability of medicinal plants.
- **Lack of Scientific Validation:** Many tribal remedies lack clinical validation, which limits their acceptance in broader healthcare systems.

Women's Role and Socioeconomic Dynamics

Rural women, the backbone of tribal economies, are pivotal in agriculture, brick-making, and paddy cultivation. However, societal constraints often limit their decision-making power, impacting their ability to advocate for ecological preservation or economic independence.

Implications for Sustainable Development

For sustainable development in Ausgram and similar areas, it is essential to balance ecological conservation with socioeconomic needs:

- **Promote Indigenous Vegetation:** Prioritizing Sal and other native species in afforestation projects can enhance ecological balance.
- **Document Tribal Knowledge:** Efforts to preserve and scientifically validate traditional medicinal practices can bridge traditional and modern healthcare systems.
- **Empower Women:** Initiatives to improve women's decision-making power and access to education can enhance their role in sustainable development.

This study underscores the interdependence of ecosystems and tribal communities, advocating for conservation strategies that respect traditional knowledge while addressing modern ecological and social challenges.



Figure 1: Chanda Tudu an informant



Figure 2: Mahadev Hasda an informant



Figure 3: Drying medicinal plants



Figure 4: Showing medicinal plants



Figure 5: taking information from kabiraj



Figure 6: author collecting information

CONCLUSION

The study provides a comprehensive overview of various medicinal plants and their applications in addressing women's health issues, particularly in reproductive health, fertility, lactation, menstrual disorders, and postnatal recovery. The traditional knowledge of plant-based remedies emphasizes the diversity of natural resources used for specific ailments, highlighting the importance of roots, barks, seeds, leaves, fruits, and other plant parts.

Key insights include:

1. **Support for Reproductive Health:** Plants like *Saraca asoca*, *Asparagus racemosus*, and *Vitex negundo* play a pivotal role in regulating menstrual cycles, enhancing fertility, and alleviating menstrual pain.
2. **Postnatal Care and Lactation:** Species such as *Moringa oleifera* and *Trigonella foenum-graecum* are vital for improving lactation and aiding postnatal recovery, underlining their value in maternal health.
3. **Inducing and Controlling Pregnancy:** Certain plants, such as *Abrus precatorius* and *Ruta graveolens*, have applications in inducing abortion, while others like *Cinnamomum zeylanicum* address miscarriage prevention.
4. **Comprehensive Benefits:** Multifunctional plants, such as *Boerhavia diffusa* and *Terminalia arjuna*, support uterine health, treat leucorrhea, and improve overall vitality in women.

The data underscores the deep connection between traditional botanical knowledge and women's healthcare practices. The diverse use of plants across various families indicates their integral role in holistic and natural healthcare systems. Furthermore, this knowledge highlights the importance of preserving and scientifically validating traditional medicine for broader health applications.

REFERENCES

1. Akerela, O (1988): Medicinal plants and primary health care: an agenda for action: *Fitoterapia* 59: 355-363.
2. Ambasta, S.P. (1986): *The Useful plants of India*, PID.CSIR, New Delhi.
3. Ghosh Sandipan et al, (2013) Analysis of Changing Landscape and NDVI in Ausgram II Block, Bardhaman District, West Bengal Using Landsat TM Images, Progressive Publishers, Kolkata
4. Gupta, S., et al, (2009) "Temporal Change Detection Study of The Predefined Forest Cover of Burdwan District" By GeospatialWorld 09/01/2009
5. Hajra, P.K. & P.Chakrabarty (1981): Wild plants sold in the Lal market of Gangtok. *India J. For.* 4(30):217-220.
6. Harshburger JW: Purpose of Ethnobotany. *Botanical Gazette* (1896): 21:146-154.
7. Jain, S.K. (1991): Some magico-religious beliefs about plants among Adibasis of Orissa. *Adibasi* 12:38-44
8. Jorim et al (2012) : An ethnobotanical survey of medicinal plants used in the eastern highlands of Papua New Guinea. *Journal of Ethnobiology and Ethnomedicine*. 8:47
9. Kala et al (2006): Developing the medicinal plants sector in northern India: Challenges and opportunities.
10. Kambizi, L. and A.J. Afolayan, (2008): Extracts from *Aloe ferox* and *Withania somnifera* inhibit *Candida albicans* and *Neisseria gonorrhoea*. *African J. Biotechnol.*, 7: 12-15.
11. Kesari, A. N., Gupta, R. K., & Watal, G. (2005): Hypoglycemic effects of *Murraya koenigii* on normal and alloxan-diabetic rabbits. *Journal of Ethnopharmacology*, 97, 247-251.
12. Khanna, A. K., Rizvi, F., & Chander, R. (2002): Lipid lowering activity of *Phyllanthus niruri* in hyperlipemic rats. *Journal of Ethnopharmacology*, 82, 19-22.
13. Kubo, I., Fijita, K., Kubo, A., Nehei, K., & Gura, T. (2004): Antibacterial activity of coriander volatile compounds against *Salmonella choleraesuis*. *Journal of Agricultural and Food Chemistry*, 52, 3329-3332.
14. Majumdar, N.C. & S.N. Biswas, (1971): An account of the vegetation of Chaibasa, Singhbhum district in south Bihar, *Bull. Bot. Soc. Bengal* 25:43-51
15. Mohapatra, Rajesh, (2012): Forest Resources of India-<http://rajeshmahapatrahubpages.com/hub>, download Google Chrome.
16. Mondal Sunanda, Paul Ranjan, (2011): Medicinal plants grown in and around Guskara used by local poor people for treating some common ailments, *Journal of Medicinal Plants Research*, Vol. 5(19), pp. 4798-4803
17. Mondal Swarnendu, Chowdhuri Habibur Rahaman, (2012): Medicinal plants used by the tribal people of Birbhum district of West Bengal and Dumka district of Jharkhand in India: *Indian Journal of Traditional Knowledge* Vol.11(4) pp.674-679.
18. Saha Anshuman, Mallick Shyamal Kanti, Banerjee Poulami, (2012) Medicinal Plants used by the Tribals of Ratanpur Village of Bankura, West Bengal *International Journal of Life Sciences* Vol.1 No.3.. Pp. 82-86
19. Samy, R.P. and S. Ignacimuthu, (2000): Antibacterial activity of some folklore medicinal plants used by tribals in Western Ghats in India. *J. Ethnopharmacol.*, 69: 63-71
20. Thurstan Shaw et al (1994): *The Archaeology of Africa: Food, Metals and Towns*, One World Archaeology, Routledge,
21. Van Etten, H. D., Sandrock, R. W., Wasman, C. C., Say, H. D., and Mccluskey, K., (1995): Detoxification of phytoanticipins and phytoalexins by pathogenic fungi, *Canadian J. of Botany*, 73, 518-525.
22. Verma AK, Kumar M, Bussmann RW (2007): Medicinal plants in an urban environment: the medicinal flora of Banarasi Hindu University, Varanasi, Uttar Pradesh. *Journal of Ethnobiology and Ethnomedicine*. 3:35