EUROPEAN ACADEMIC RESEARCH
Vol. III, Issue 8/ November 2015

Impact Factor: 3.4546 (UIF)
DRJI Value: 5.9 (B+)

ISSN 2286-4822
www.euacademic.org

Some Secrets of Ethno-Medicine: With Reference to Hepatitis Practices in Sivasagar of Assam, India

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Abstract:

An attempt has been made in this paper is to bring to light the secrets of ethno-medicine practices for hepatitis in Sivasagar district of Assam and examine the present status of ethno-medicine practices among the communities and tribes. During 2013-2015 a community level ethno-medicinal survey cum investigation was conducted in 30 sample community villages of the district for exploration of hepato-protective ethno-medicinal knowledge and recorded 80 medicinal plants from 300 ethno-medicine practitioners and knowledgeable users' sources. The study reveals that the basic ethno-medicinal norms followed by practitioners during raw drug doses and supplements preparation are the secrets of ethno-medicine which have strong scientific base. The basic ethno-medicinal norms are viz. selection of medicinal plants and their sites, time of collection plant parts and products, mixing of raw materials at certain therapeutic ratio, methods of preparation, standardization of raw drug dose and supplements for different age groups of hepatitis patients, diagnosis of forms hepatitis with traditional methods and methods of medicinal supplements and therapeutic drugs administration. A clinical tests

and trials are utmost necessary for exploration of effective hepato-protective drugs and supplements of the region for human welfare.

Key words: Ethno-medicine, Hepatitis, Sivasagar, Assam

Introduction:

Since early Neanderthal man biotic and a-biotic components of nature have been using for hilling purposes with trial and error methods. Ethno-medicines are those therapeutic raw drugs and medicinal supplements, composed of biotic and a-biotic components of nature and closely linked with culture and traditions of ethnics, formulated and administrated by practitioners and knowledgeable users for the treatment of various diseases and illness of human, peat animals, cultured crops and other purposes with their inherent knowledge based experiences in a particular geographical area or region. The basic raw materials of ethno-medicines may be of plant origin, animal origin, mineral or metal sources. Medicinal plant species are the basic sources of ethno-medicinal therapeutic drugs and supplements. It plays a vital role in primary health care of people in the developing countries of world. Ethno-medicinal health care system has offered first line therapy against many diseases. In 1973, World Congress of Alternative Medicine Convention at Rome, World Health Organization (WHO) has identified and enlisted over 100 forms of different practices of the world, along with ethno-medicine (Mirchandni 2002).

Liver problems are going to be a most serious problem in the world. Hepatitis is a liver inflammatory disease, infected by groups of virus- A, B, C, D and E. As per WHO report 2011, hepatitis kills more than one million people every year, one in twelve persons are estimated to be living with viral hepatitis. Hepatitis B is 100 times more infectious than HIV. Hepatitis is

a global problem. Viral hepatitis is important pathogens causing liver diseases in India. There is no unique treatment for jaundice and hepatitis by prescribing modern allopathic and homeopathic medicine (Abbasi, *et. al.,* 2009). Hepatitis C is an emerging infection in India and an important pathogen causing liver disease. Hepatitis treatments with ethno-medicinal raw drugs and supplements are a part of culture and tradition of ethnic groups and sub-groups of Sivagar district of Assam. Among the all ethno-medicinal supplements and therapeutic drugs, hepato-protective ethno-medicine has strong social reliability for its effectiveness and less adverse affect on health. With the advancement of science and technology ethno-medicinal knowledge has been rapidly declining for which many effective ethno-medicinal plant species of the region are in the path of threatened.

The study area Sivasagar district is a unique part of Assam from socio-cultural and ecological points of view. It extends from 26º45′ North to 27º15′ North latitude and 94º25′ East to 95º20′ East longitude. It comprises with three sub-divisions viz. Sivasagar, Nazira and Charaideo. The normal annual rainfall of the district is 2244.5 mm. The minimum and maximum temperatures are 6.9°C and 37.2°C during winter and midsummer respectively and average relative humidity is above 86%. Humid monsoon climate with dry winter and wet summer; deciduous, evergreen and semi-evergreen forest, elevated topography with hills, hillocks and plains; alluvial and late-rite soil belts; numerous tributaries and sub-tributaries; varied species of flora and fauna at ecosystem level and several ethnic groups and sub-groups with their own folk culture traditions are the significant character of this region.

Objective:

The basic objective of the paper is to bring to light the secrets of ethno-medicine practices for hepatitis in Sivasagar district of

Assam and examine the reliability of raw hepato- protective drugs and supplements among the communities and tribes.

Significance:

The study is significance for the botanists, bio-technologist, pharmacologist, planners and decision makers of state government of Assam and central government of Indian and scholars of relevant fields in the realistic formulation of strategy and plans for exploration of new hepato-protective drugs and supplements from ethno-medicinal health care sector.

Review of Relevance Literature:

Review of relevance literature revealed that in ethno-medicinal health care sector, social scientist as well as scientific researchers has been undertaking study with their own approaches. Last few decades researchers have been exploring many effective medicinal plants from ethno-medicinal health care sector. In different region of the world researches has been undertaking by research on hepato-protective medicinal plants but very less integrated research has done considering ethno-medicinal formulation methods and techniques. In Pakistan a study was conducted by Arshad Mehmood Abbasi, Mir Ajab Khan, Mushtaq Ahmad, Muhammad Zafar, Hamayun Khan, Niaz Muhammad, and Shazia Sultana, (2009) on medicinal plants used for jaundice and hepatitis. Based on socio-economic documentation, they reported 30 medicinal plants belonging to 24 families while majority of the reported species are wild and rare.

In one study Ashis Mukhopadhya, Department of Gastroinal Science. Christian Medical College, Vellor, India (2008) conducted a research on Hepatitis C infection in India, where he found that Hepatitis C is an emerging infection in

India responsible for liver diseases in various regions of the country. Plant species are the chief source of ethno-medicinal therapeutic drugs. An important study was conducted by Prabhat Kumar Rai and H. Lalramnghinglova, (2011) on ethno-medicinal plant resources of Mizoram, and reported 302 plants from 96 families. They found that ethno-medicinal plants of the state are threatened for anthropogenic activities. In concluding remark they stated that deforestation and up growing popularity of modern health care services are the chief factors for which medicinal plants are losing its attention in the state. Many researchers have done their survey on ethno-botanical literature. In India an ethno botanical literature survey has been undertaking by Nikita Rajlaxmi Rana, Pushpendra Goswami and Shilpa Subhedar, Swami Vivekanand College of Pharmacy and Central India Institute of Pharmacy, Indore, M.P., (2011) on hepato-protective herbal drugs. They redefine the use of important herbal hepato-protective drugs like *Tionospora Cordifolia*, *Terminalia Arjuna*, *Plumbago Zeylanica* and *Berberis Aristata* that consist of specific chemical constituents and have their specific hepato-protective activity. These herbal drugs have shown the ability to maintain the normal functional statues of the liver with or without fewer side effects.

A study was conducted by V.T., Hiremath, M.M. J. Vijaykumar, and T.C. Taranath (2010) on ethno medicinal plants of Jogimatti forest of Chitradurga district, Karnataka, India, where they reported 40 medicinal plants under 36 families for the treatment of 42 diseases either in single or in combination with some other ingredients, for the treatment of various ailments like eye ailments, joint pains, paralysis, urinary infection, eczema, fever, rheumatic complaints, inflammations, leprosy, cough and cold, herpes, ring worms, asthma, wound/burns, renal pain etc. They reported that many people of Chitradurga district still continue to depend traditionally on medicinal plants for primary health care.

Foundation for Revitalisation of Local Health Tradition (FRLHT), Banglore, India, has been conducting a research and developmental activities in the field of primary health care. In one workshop, Darshan Sankar (2006) stated that field tested participatory methodology is very important for rapid assessment of the community's therapeutic use of medicinal plants. It will be helpful to revitalize the community's folk healing practices in India.

In Sivasagar district of Assam a study was conducted by D. Nath (2011) on naturally grown edible herbs used for hepatitis. In his study, 42 edible herbs used knowledge of ethnics of the district was reported, while 17 species are effective for all forms of hepatitis. These species are traditionally used by communities and tribes as medicinal recipes during hepatitis infections. He stated that ethno-medicinal researchers should have changed their methodology of research, so that research findings will be helpful for rural masses. In his concluding remarks he stated that proper monitoring and planning is utmost necessary for sustainable utilization and management of herb bio-resources of the district.

Materials and Methods:

During 2013-2015, an ethno-medicinal survey was conducted in 30 sample community villages of Sivasagar district of Assam for exploration of traditional hepatitis knowledge. Primary data/information was collected with two sets of purposefully designed questionnaire cum schedule. From each sample community village, 10 respondents (reputed hepatitis practitioners, general practitioners and knowledgeable users) were selected for primary data/information. Total 80 hepato-protective medicinal plants were recorded so far from 300 respondents' sources. With set-II questionnaire cum schedule 186 respondents (doctors, reliable persons, researchers,

government officials and persons related to mass media) were interviewed and interacted. Total 486 respondents were considered for the study. During field visits, photographs of the medicinal plants as well as voucher specimens were collected; side by side folk culture of communities and tribes and their traditional health care behaviors were noted down. Voucher specimens were identified with the help of relevant reports of (Kanjilal. et. al, 1934-1940; Jain and Rao. 1990; Islam, 1996; and Jain S.K 2001; Bora, A. 2003; Borah A, 2003; Dutta A C, 2004).

Results:

The study reveals that the basic ethno-medicinal norms flow by ethno-medicine practitioners and knowledgeable users has determined the effectiveness of raw therapeutic drugs and supplements. Treatment of hepatitis is very risky. Most of the time practitioners uses edible plant parts and products and advices to uses certain food during hepatitis infection. Plant parts and products are the chief raw materials of ethno-medicinal raw drugs and supplements. Practitioners as well as communities and tribes are knowledgeable on hepato-protective medicinal plants of the study. During hepatitis infection all section of people uses certain edible plants as recipe forms with their inherent knowledge based experiences, Practitioners and knowledgeable users always prefer the plants grown in toxic free sites. Mature plant pats and product with disease are collected for medicinal supplement and raw drugs preparation. Another secret of ethno-medicine practices is the time of plant parts and products collection.

From the study based on investigation in the sample community villages of the district it was recorded that reputed hepatitis collected raw plant materials in between dark and light reaction (before sunrise), which is the hormonal balance time of leafs. Practitioners collected twigs, sunny parts of bark

and roots with some techniques (plucking with one breathe; bark collection from up to down with experiences and roots collection from certain depth). For raw drug dose preparation practitioners selected certain medicinal plants as the plants are not available in all season. Based on seasonal availability of medicinal plants, ethno-medicine practitioner prepared therapeutic drug doses with their own formulation at certain therapeutic ratio along with few edible plants. Before administration of hepato-protective drugs and supplements practitioners asked the family members for diagnosis of hepatitis forms and clinical test of the patient blood and urine. Reputed practitioners some time apply traditional methods. Some of the reputed practitioners used lime in palm and observe color, observe the urine color and observed the inflammation of liver. In all forms of hepatitis practitioners first administrated edible medicinal supplements. Generally administrated two to three medicinal supplement doses for one day and after health progress therapeutic plants are used. Raw medicinal supplement doses are prepared for one or two day. Practitioners advices to used such supplements along with aliphatic drugs as it has no side affect which has provided certain vitamins, miners and other phyto-molecules.

Methods and techniques of ethno-medicine preparation for hepatitis are mixing of different plant parts. After collection of raw plant parts, practitioners and knowledgeable users properly wash the plant with water and selected different plant parts for particular doses and grinded with traditional methods and allowed to oxidize for 10-20 minutes. Most of the time, hepatitis drugs and supplements of the study area are prepared with raw cow milk with sugar base. It was recorded that local people always faith on reputed hepatitis practitioners as they are more experienced. Reputed practitioner belongs to all communities and tribes of the study area advices their patients for used certain recipes and asked for better aliphatic treatment and tests. Again practitioners of the study area

standardized raw drug dose and supplements for different age groups of patients.

The study reveals that out of the 80 recorded medicinal plants, 33 plant species are frequently used by respondents. Among the 33 reported plants, 16(57%) are herb, while 15(53.5%) plants are threatened for several anthropogenic causes viz. changing patterns of agricultural land-used, deforestation, degradation of ethno-medicinal knowledge among the young generation, extension and development of small scale tea cultivation in the high land, drilling operational activities of ONGC (L) and OIL, pesticide and herbicidal pollution from Tea-estates, lack of knowledge on economic potentiality of ethno-medicinal plants, changing traditional food-habits, lack of scientific research in this traditional health care sector and less focus on ethno-medicine practices of the region. Among the reported plants 19 are used in both supplement as well as therapeutic drug forms. Among the reported plant species 6 plants viz. *Asperagus racemosus* Willd., *Cotsus specious* (Koen.) Smith., *Drymaria cordeta* Nees., *Sida rhombifolia* L, *Tinospora cordifolai* (Willd) and *Zigiber officinal* Rose are used in therapeutic drugs as well as medicinal supplement forms.

Discussions:

The plant species *Alternanthera sessiles* L., *Amaranthus viridis* L., *Cajanus cajan* Mill., *Drymaria cordeta* Nees., *Hedyotis diffusa* Roxb., *Hydrocotyle asiatica* L., *Hydrocotyle sibthorpioides* Lamk., *Paederia scandens*(Lour.) Merr., *Punica granatum* L., *Tinospora cordifolai* (Willd).and Zigiber *officinal* Rose has prospect of herbal and medicinal tea production as most of them are edible. The concept of organic tea; herbal tea and spice tea are not new for North-East India. Communities and tribes traditionally prepared such types of tea, before the discovery of *Camellia sinensis* var. *assamica* (Maste) Kitomura

(=*Thea assamica* Masters) by Robert Bruce in 1823 with the assistance of Dewan Moniram Dutta Barua (Jhawar 2000).

The reported plants have protected our liver in many ways. Again the plant has confidently used by practitioners and experience users in therapeutic drug and medicinal food supplement forms for all types of hepatitis. The reported species could be successfully utilized in pharmaceutical industries of the country with proper clinical trial and test. In present course of investigation it is observed that no any conservation measures have been taken for ethno-medicinal plants of the region.

Summary and Conclusions:

Increasing demand of effective anti-hepatitis drugs and food supplement in the country, government and non-government organizations, researchers, local cultivators as well as pharmaceutical industries of the country should come forward with integrated approaches, considering different components like methods of cultivation, propagation, and related research work with socio-cultural justice and economic gains to the area. More over government of India should take necessary steps for revitalization of such practices through mass media, community level campaign, focusing the commercial prospect of the plants among local people and training should be done for small scale medicinal plants cultivation at family level for quality best production. It will generate income and employment opportunities to the rural unemployed youth of the district. There is an urgent need to establish these traditional values in both the national and international perspective, realizing the ongoing developmental trends in traditional knowledge. Considering health care benefits to the large section of poor people in the country, the researchers should have changed their methodology, so that their findings will be more beneficial to the society.

Acknowledgements:

The authors like to acknowledge the ethno-medicine practitioners and knowledgeable users of Sivasagar district, Assam, who expressed their traditional knowledge base experiences on ethno-medicine practices for human welfare.

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Fig-1: Few Recorded Hepato-Protective Ethno-Medicinal Medicinal Plants of the Study Area.*Source:* Sample Community Villages (2013-2015)

Abroma angusta L. L.f

Alternanthera sessiles L.

Amaranthus spinnosus L.

Amaranthus viridis L.

Carica papaya L.

Chenopodium album L.

Cotsus speciosus (Koenig.) Smith

Colocasia esculenta Schoot.

Drymaria cordeta Nees.

Euphorbia nerifolia L

Hydrocotyle asiatica L.

Hedyotis corymbosa (L.) Lamk

Impatiens glandulifera Royle

Paederia scandens (Lour.)Merr.

Phyllanthus fraternus Webster.

Sida rhombifolia L.

Tinospora crispa (L.) Hook. f.Th

Tinospora cordifolai (Willd)

Table-1: Enumeration of Recorded Hepato-protective Ethno-medicinal Plants.

Sl. No.	Botanical Name, Family, Vernacular name, Habits& Relative Abundance of the Plant	Parts and Product used in Medicinal Supplement forms	Parts and Product used In Therapeutic Drug forms
1	*Alternanthera sessiles* L. Amaranthaceae	Twigs of plant	Roots and Leaves

	Matikaduri H, F, N		
2	*Amaranthus spinnosus* L. *Amaranthaceae* Hatikhutara H,F, N , Th	young plant	Roots
3	*Amaranthus viridis* L. Amaranthaceae Jatikhutara H, F, N&Cu	Twigs, young plant	Leaves
4	*Asperagus racemosus* Willd Lillaceae Satamul Cl, O,Th, N&Cu	Not used	Modified roots
5	*Averrhoa carambola* L. Averrhoaceae Kordoi T, O, Cu	Fruits	Fruits
6	*Banincasia hispida*(Thunb) Cogn. Cucurbitaceae Salkumura Cl, F,Cu	Fruits	Fruits
7	*Cajanus cajan* Mill. Papilionaceae Roharmah Sh,F, N&Cu	Not used	Leaves
8	*Carica papaya* L Caricacaceae Omita Sh, F, Cu	Raw Fruit	Not used
9	*Chenopodium album* L. Chenopdiaceae Jilmil Sag H, F,N&Cu	Twigs of young plant	Not used
10	*Cotsus specious* (Koen.)Smith Costaceae Jhomlakhuti H.,O,Th N&Cu	Fruits	Root
11	*Cocos nucifera* L. Arecaceae Narikol T,F,Cu	Coconut water	Not used
12	*Colocasia esculenta* Schoot. Arceae Kolakosu H, F, N	Young Leaves	Not used
13	*Cynodon daotylon* Pers. Poaceae Duboribon	Not used	Whole plant

	H, F, N		
14	*Drymaria cordeta* Nees. Convolvulaceae Laijabori H, F, N	Whole plant	Whole plant
15	*Garcinia morell* (Gaertn.) Desv. Clusiaceae Kusithekara ST,N&Cu, O, Th	Ripen fruits	Bark and dry fruits
16	*Hedyotis diffusa* Roxb. Rubiaceae Bonjaluk H, F , N ,Th	Whole plant	Whole plant
17	*Hydrocotyle asiatica* L. Apiaceae Bormanimuni H,F, N	Whole plant	Whole plant
18	*Hydrocotyle sibthorpioides* Lamk. Apiaceae Sorumanimuni H, F, N	Whole plant	Whole plant
19	*Houttuynia cordata* Thunb. Saururaceae Mosondoi H, O, Cu,Th	Leaves	Not used
20	*Manihot esculenta* Crantz. Euphorbiaceae Simalu alu Sh, N&Cu, O,Th	Bulbs	Bulbs
21	*Musa balbisiana* Colla. (=*M. sapientum* var. Pruinosa King. Ex Cowan) Musacea Bhim kol H, F, Cu	Ripen fruit and young plant	Young plant
22	Musa velutinaWendl. & Drude. Musaceae Malbhug kol H,O, Cu	Ripen fruit and young plant	Young plant
23	*Oxalis corriculata* L. Oxalidaceae Sorutengashi H, O, Th	Whole plant	Whole plant
24	*Oxalis corymbosa* L. Oxalidaceae Bortengashi H,O, N ,Th	Whole plant	Whole plant
25	*Paederia scandens*(Lour.) Merr. (=*P foetida* L.)	Stem with leaves and roots	Not used

	Rubiaceae Vedailota Cl, N&Cu,F		
26	*Phyllanthus fraternus* Webster. (=*P. niruri* L.) Euphorbiaceae Bon-amlakhi H,O,N, Th	Whole plant	Whole plant
27	*Punica granatum* L. Punicaceae Dalim Sh, F,Cu	Fruits	Bark & fruits leaves
28	*Raphanus sativus* L. Brassicaceae Mula H,F,Cu	Young leaves	Not used
29	*Saccharum officinarum* L. Poaceae Kuhiar H, F,Cu	Stem Juice	Sugar
30	*Sida rhombifolia* L Malvaceae Saru-sunborial H, F, N, Th	Not used	Leaves & roots
31	*Spinaciaolerace* L. Chenopodiaceae Mitha paleng H,O, N&Cu	Whole Plant	Not used
32	*Tinospora cordifolai* (Willd) Hoof.Th Menispermaceae Siddhi Lota Cl.,R,Th, N	Leaves	Steams& leaves
33	*Zigiber officinal* Rose. Zingiberaceae Moranada H, O, Cu,Th	Modified roots	Modified roots

(H-Herbs, Sh-Shurb, T- Tree, Cl- Climber, F- Frequent, O-Occasional, R-Rare, Th-Threatened, N –Naturally grown, Cu-Cultivated) *Source:* Based on primary data.