

Diversity of Potent Ethno-Medicinal Flora for Headache from North-Tarai Forests of (U. P.) India

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Abstract : An ethno-medicinal survey was undertaken in the North Tarai Forests of Uttar Pradesh for the documentation of ethno-medicinal information of plants and herbs used for the treatment of various ailments in the area by traditional healers as well as rural inhabitants. The North Tarai region of U. P. has well blessed phytodiversity in its green natural forests as well as rich ethnic and rural communities. The rural inhabitants of the area are still far from modern civilization so they are totally dependent on forests for their various needs specially for healthcare. Due to the presence of rich traditional knowledge of medicine and great faith and belief on Ayurvedic and Siddha system of medicine the rural inhabitants use herbal medication. During the ethno medicinal survey we found one hundred forty plant species in which one hundred ten plant species belonging to ninety five genera representing fifty one families were reported which were being used for the treatment of headache. The present work was undertaken for the treatment of headache. The investigation was performed by collection of medicinal plants in consultation with local healers, rural dwellers, as well as medicine venders. Questionnaire method was adopted for the documentation of ethno medicinal information. Various medicinal plant parts viz. leaves, flowers, bark, latex, seeds, rhizome, root, as well as whole plant part were being used as ethnomedicine. Mostly medicines were used externally while somewhere also being used internally. For each plant species details of scientific name, author name, family name and vernacular name as well as method and mode of medicine administration are described in the text. In conclusion the North-Tarai region of U. P. disposes great diversity of medicinal plants as well as large phytotherapeutic knowledge which are to be scientifically investigated and needed to be conserved.

Keywords: Ailments, ethno-botanical, ethno-medicine, ethnic culture, medicinal plants, phytodiversity, traditional knowledge, north-tarai forest, headache.

Introduction

World constitute twenty mega diversity countries in which warm tropical region between the tropic of cancer and tropic of capricorn on either side of the equator (between $23^{\frac{1}{2}^{\circ}}$ N and $23^{\frac{1}{2}^{\circ}}$ S around the globe) have since long provided the most suitable habitat for living organisms with a rich and diverse plant, animal and microbial life forms constituting twelve mega diversity countries. The twelve mega diversity countries constitute about 65% of the total biodiversity. India is one of the twelve mega diversity countries having a great wealth of biological diversity in its forests, wetlands and in its marine areas. India figured with three hot spots Himalaya, Indo-Burma and Western Ghat. The two Indo-Burma & Western Ghat are included amongst the top eight most important hottest hot spots of the world.

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The study area of North-Tarai region of Uttar Pradesh constitute Balrampur, Shrawasti, Bahraich, Kheri-Lakhimpur and Pilibhit districts with International border of Nepal. These districts of North – Tarai region of U. P. are full of green natural forests and well blessed with great phyto diversity as well as traditional tribal communities and ethnic culture. The rural ethnic tribes are completely dependent on forests for their livelihood and mostly for healthcare because they have traditional knowledge of medicine as well as deep faith and belief in ayurveda and siddha system of medicine renowned since vedic period. The rich biodiversity of North Tarai Forest of Uttar Pradesh has provided an initial advantage to its inhabitants for observing and scrutinizing the rich flora for developing their own traditional knowledge & medicines in curing various ailments. The primitive tribals acquired the knowledge of economic and medicinal properties of many plants by trial and error methods and they are the store house of such valuable knowledge¹. This accumulated knowledge is passed on from one generation to the other by oral tradition without any written document. The people of the region are rich in ethno medicinal knowledge owing to their close affinity with the surrounding vegetation. A large number of plant species of immense medicinal value are abundantly found in this region. Medicinal plants form the basis of traditional or indigenous systems of healthcare used by the majority of remotely located dwellers. Religious inspiration, inaccessibility and lack of medical facilities in the villages seem to be the cause of depending on these medicinal plant species. Remedies based on these plants often have negligible side effect and due to relatively high cost of synthetic (allopathic) medicines, traditional herbal medicine have become an affordable choice for the poor people in these rural areas. Traditional system of medicine is a wise practice of indigenous knowledge system, which has saved the lives of poor people. There is great traditional knowledge hidden among the tribes and rural people of the region. The value of medicinal plants to the mankind is very well proven since vedic period. It is estimated that 70-80 % of people in developing countries depend on traditional medicines for their primary health needs. Nature has been a source of medicinal plants for thousands of year and an impressive number of modern drugs have been isolated from natural sources. Various medicinal plants have been used in daily life to treat various ailments. In fact plants produce a diverse range of bioactive molecules making them a rich source of different types of medicines. Ethno-botanical and ethno-medicinal studies are today recognized as the most viable method of identifying new medicinal plants or refocusing on those earlier reported plants for bioactive constituents.

Keeping the aforesaid view and the rich ethno medicinal practices of the area the present work for documentation and analysis of various traditional herbal method of treatment for headache in the rural areas of North-Tarai region of Uttar Pradesh is undertaken.

Headache

Headache or Cephaloagia refers to any pain or discomfort in and around the head and neck. The causes of headache include constriction of blood vessels, abnormal neuron activities, genetic causes, stress, tension, physical exhaustion, lack of sleep, excessive smoking and drinking habit as well as luxurious and imbalanced life style. Headache is among the most common medical complaints. The majority of them are not life threatening but creates critical condition and affects normal life. They can be classified into three main categories- Tension headache, Migraine headache (Hemi-cranial) and Cluster headaches. Tension headaches are the most common type of headaches. Migraines have well defined attack with symptoms like nausea, vomiting, sensitivity to lights and sounds. Cluster headaches or chronic headache are repetitive ones that occur

International Journal of Interdisciplinary and Multidisciplinary Studies(IJIMS)

for weeks to months at a time followed by periods of remission. Most of the people go for a pain killer to get relief from their headaches ². Painkillers have side effects and are not good for health. Natural treatment by using plants for the treatment of headache is best method because it has no any side effects as well as free of cost or low cost.

Scope of the study

The focus of this research work is the perception and context of use of traditional medicines. Traditional folk medicine is the application of indigenous beliefs, knowledge, skills and cultural practices concerned with human health. The study will provide a strong biomedical approach particularly in drug discovery programs. By using natural remedies humans will be able to minimize the use of artificial chemicals, unnatural stimulant and our dependence on natural medicines will be made our treatment more effective.

Materials and Methods

Surveys were conducted in North Tarai Forest of Uttar Pradesh for the documentation of ethnomedicinal importance of flora. Before proceeding for any survey and collection trips necessary clearance for the survey and collection of plant samples from the forest area under their control, arrangement for local forest staff to guide in the forest and for accommodation in forest rest houses, had been obtained from the competent forest authority. During the ethnomedicinal survey we found near about two hundred plants which were being used for the treatment of various ailments. Present communication is emphasized on the medicinal plants being used for the remedy of headache. Elderly persons and resourceful medicine-men were contacted for the purpose. Questionnaire method was adopted for documentation of folk indigenous knowledge. The interviews were carried out in local community to investigate local people and local healers who are the main user of medicinal plants. Plant specimens were collected in the forest and at the homes of traditional healers as well as our own locality at regular intervals in different seasons. Medicinal plant parts were also collected from market vendors. Local healers, elder experienced persons as well as market vendors were interviewed using structured questionnaires. We provided fresh plant materials to the informants and simple questions were asked to them viz. what is the name of plant, what is this plant used for, which part used, which quantity, what is the method of medicine preparation and its mode of administration. All the questions were asked in the same order and their answer recorded in the field note book. The specimens of medicinal plants were collected, pressed, dried, preserved, mounted as described by Jain and Rao ³, ⁴ and identified through the available taxonomic literature, manuals and floras ⁵, ⁶. The specimens were deposited in the Herbarium maintained by the Department. The data taken in the field was transferred to the slip pasted on the herbarium sheets. The references given in the text has also been provided by their wave link.

The plants used in the treatment of headache is enumerated below in Table with botanical name followed by family as well as their vernacular name, plant parts used and mode of medicine preparation & administration.

Ethnomedicinal plants used in the treatment of headache:

Abrus precatorious Linn., Gumchi (Fabaceae):

- ▶ Whole plant or fresh leaves are made into paste and applied on head as well as forehead to cure headache.

International Journal of Interdisciplinary and Multidisciplinary Studies(IJIMS)

Acacia catechu (Linn. f.) Willd., Khair, Mimosa catechu (Fabaceae):

- ▶ Paste of fresh leaves as well as flowers is applied on forehead to get relief in headache.
- ▶ Wood is cut and the sap exudates applied on forehead is beneficial for headache.

Acacia nilotica Linn., (syn. **A. Arabica** Linn.) Babool (Mimosaceae):

- ▶ Paste of fresh flower is applied on head as well as forehead which cures headache.

Achyranthes aspera Linn., Latjeera (Achyranthaceae):

- ▶ Seeds are powdered and tied in a cotton cloth. It is smelled repeatedly in short intervals, after few minutes person will sneeze and harmful waste liquid will be come out with sneezing and headache due to migraine or other causes will disappear.

Acmella oleracea Linn., Spilanthes (Asteraceae):

- ▶ Paste of root and flower is applied on forehead which produces soothing effect on headache.

Acorus calamus Linn., Sweet flag, Sedges, Bach (Acoraceae):

- ▶ Decoction of twenty gm. rhizome is taken orally so as to cure headache.
- ▶ Paste of root or whole plant is applied on forehead to cure headache.

Adhatoda vasica Nees., Rusa, Arusa Vasaka (Acanthaceae):

- ▶ Fifty gm fresh flowers are dried in shade and powdered. It is mixed in sufficient amount of jaggery (gur). It is made into tablets and dried in shade. If one tablet is taken thrice a day cures headache.

Aegle marmelos Linn., Bel (Rutaceae):

- ▶ Paste of young leaves is applied on forehead to cure headache.
- ▶ Cotton cloth or strips are wetted in the juice of fresh leaves and applied on forehead every thirty minutes cures headache.

Allium cepa Linn., Onion, Pyaz (Liliaceae):

- ▶ Paste of bulb is applied on head as well as on forehead which cures headache due to sunstroke.
- ▶ Paste of bulb is rubbed on the sole of feet to cure headache due to sunstroke.

Allium sativum Linn., Garlic, Lahsun (Liliaceae):

- ▶ A clove of garlic is chewed very slightly. Within few minutes headache will disappeared.
- ▶ Two cloves of garlic are chewed and a glass of luke warm milk is taken during the headache.
- ▶ Three five cloves of garlic are crushed and mixed into hundred ml. milk. It is taken orally in chronic headache.

Aloe vera Linn., Ghritkumari, Ghaikwar (Liliaceae):

- ▶ Pulp or jel of leaves is taken and a small amount of turmeric (**Curcuma longa** Linn., Zingiberaceae) is mixed to it. It is applied on forehead to cure headache.

Amaranthus spinosus Linn., Chaulai (Amaranthaceae):

- ▶ Paste of fresh leaves of **Amaranthus** and Bhringraj (**Eclipta alba** Linn., Asteraceae) is applied on forehead cures headache.

Amaranthus viridis Linn., Slender amaranth (Amaranthaceae):

- ▶ Poultice of leaves is placed on forehead cures headache.
- ▶ Leaves are made into paste with five black papper (**Piper nigrum** Linn., Piperaceae). Paste is applied on forehead cures headache.

Amomum subulatum Linn., Elayachi (Zingiberaceae):

- ▶ Paste of seeds is applied on forehead to cure headache.
- ▶ Smelling of seeds produces relief on headache.

International Journal of Interdisciplinary and Multidisciplinary Studies(IJIMS)

Asparagus racemosus Willd., Shatavari (Liliaceae):

► Fresh root of the plant is crushed and its extract is taken. The extract is mixed with equal amount of sesame oil (**Seasum indicum** Linn., Pedaliaceae) and boiled on low flame of fire. When only oil is remained mixture is put out of fire. It is cooled and at the morning time massage with the oil on the head as well as forehead cures any type of headache.

Azadirachta indica A. Juss., Neem (Meliaceae):

► Paste of tender leaves is applied on head as well as on forehead. It cures headache due to heat.

► Neem oil is applied on forehead produces relief on headache.

Bombax cieba Linn., Semal, Shamli, Mocha, Red cotton tree (Malvaceae):

► Paste of bark is applied on forehead cures headache as well as giddiness due to headache.

Brassica compestris Linn., Mustard, Sarso (Brassicaceae):

► Putting of four drops of oil in both nostrils and ears twice daily cures headache due to cold.

Brassica juncea (Linn.) Czern. & Coss., Rye (Brassicaceae):

► Seeds are made into paste with help of water. Paste is applied on forehead to cure headache.

Bryophyllum pinnatum (Lam.) Oken., Ajuba, Parnbeej (Crassulaceae):

► Paste of leaves is pasted on forehead cures headache.

Caesalpinia bonduc (Linn.) Roxb., Kat karanj, Fever nut (Caesalpiniaceae):

► Ten gm seeds of kat karanj and sahjan (**Moringa oleifera** Linn., Moringaceae) two leaves of tejpatta (**Cinnamomum tamala** Linn., Lauraceae) and five gm ginger (**Zingiber officinale** Roscoe., Zingiberaceae) are powdered. It is boiled in 500 ml water and its aroma or infusion is taken by steaming till the steam comes out. After few minutes person will sneeze and his headache due to migraine or any type of headache will disappear.

► Paste of leaves and flower is topically applied on forehead produces relief on headache.

Cannabis sativa Linn., Bhang (Cannabinaceae):

► Leaves are made into paste and tied in a cotton cloth. It is smelled slowly which results soothing effect on headache.

► Two drop luke warm juice of fresh leaves is put into the ear which cures headache due to cold.

Carissa congesta Wight., Jangali Karaunda (Apocynaceae):

► Two or three tender twigs of five inches are chewed. After twenty minutes the person will sneeze seven to ten times and his headache, migraine or any type of headache disappears forever.

Cassia tora Linn., Chakwad (Caesalpiniaceae):

► Twenty five gm. seeds are made into paste with the help of water. Paste is applied on forehead cures headache.

Catharanthus roseus (Linn.) G. Don., Madagascar Periwinkle (Apocynaceae):

Poultice of leaves and flower is applied on forehead cures headache.

Calotropis procera W.T. Aiton., Madar (Asclepiadaceae):

► Two drops of leaf juice is put into the both nostrils twice daily which cures headache.

► Paste of root is applied on forehead cures headache.

Calotropis gigantea R. Br., Aak (Asclepiadiaceae):

► Two younger leaves are made into paste and taken orally before sunset cures headache of cold & migraine.

Centella asiatica Linn. Brahmi (Apiaceae):

► Paste of leaves are made into paste and applied on forehead cures headache.

► Whole plant is dried in shade and powdered. Five gm. of powder is taken orally with a glass of milk or a teaspoonful of honey produces relief on headache if taken for ten days enhances memory.

International Journal of Interdisciplinary and Multidisciplinary Studies(IJIMS)

▶Decoction of whole plant is taken orally creates soothing effect on headache.

Cestrum nocturnum Linn., Night queen, Ratrani (Solanaceae):

▶Smelling of flowers before going to bed cures headache due to tension and helps in sleeping.

Chassalia curviflora (Wallich) Thw., Curved flower woody chasalia (Rubiaceae):

▶Root is made into paste and applied on forehead cures headache.

▶Root and fresh leaves are made into paste and its poultice is prepared. It is applied on forehead which cures headache.

Cinnamomum tamala Ham., Tejpatta (Lauraceae):

▶Fresh or dried leaves are made into paste with rose water or water and applied on forehead cures headache due to cold as well as heat.

▶Tea made of **Cinnamomum** leaf powder and tulsi (**Ocimum sanctum** Linn., Lamiaceae) is taken twice cures headache due to cold & cough.

Cinnamomum zeylanicum Blume., Cinnamon, Dalchini (Lauraceae):

▶Paste of bark is warmed and applied on forehead which cures headache due to cold.

▶Paste of leaves is luke warmed and applied on forehead to cure headache.

▶One teaspoonful of dalchini powder is mixed in a glass of luke warm milk and a teaspoonful of honey is added to it. It is taken orally when headache . It cures hemi-cranial headache.

Citrus aurentifolia Linn., Lemon, Neemboo (Rutaceae):

▶Paste of leaves applied on forehead cures headache.

▶The rind (peel) of three lemons are crushed and made into paste. Paste is applied on forehead cures headache due to heat.

▶Putting two drops of lemon juice in the nostrils cures headache.

▶One lemon fruit is cut into two pieces and is warmed and rubbed on forehead. Continuously rubbing of luke warm piece for thirty minutes is beneficial in headache.

Citrus medica Linn. Neembu (Rutaceae):

▶Juice of one lemon fruit is mixed in a glass of water along with a pinch of common salt and taken orally to cure headache due to acidity or gas.

Citrullus vulgaris Linn., Taroj, Watermelon (Cucurbitaceae):

▶A glass of fruit juice is taken and one teaspoonful of sugar or honey is added to it. It is taken orally to cure headache caused due to heat or sunstroke.

Cleome gynandra Linn., Hulhul (Capparidaceae):

▶Poultice of leaves is placed on forehead cures headache.

Cleome viscosa Linn., Hurhur (Capparidaceae):

▶Fresh leaves and seeds are made into paste with the help of water and applied topically on forehead cures headache.

Clerodendrum glandulosum Linn. (Lamiaceae):

▶One teaspoonful of fresh leaf extract is taken orally as well as paste of fresh leaves is applied on forehead reduces stress and tension.

Clerodendrum serratum (Linn.) Moon., Bharangi (Verbenaceae):

▶Root is made into paste with warm water and is applied on head as well as forehead cures headache.

Clitoria ternatea Linn., Aparajita (Fabaceae):

▶Two or three drop juice of legume or seed is put in both nostrils twice a day cures hemi-cranial headache.

▶Paste of seed and root is applied on forehead cures headache.

Cordia dichotoma Frost., Lassor (Boraginaceae):

International Journal of Interdisciplinary and Multidisciplinary Studies(IJIMS)

▶Seeds are made into paste and applied on forehead so as to cure headache.

▶Extract of fresh seeds is applied on forehead to cure headache.

Curcuma aromatica Linn., Amahaldi (Zingiberaceae):

▶Paste of rhizome applied on forehead cures headache.

Curcuma longa Linn., Turmeric, Haldi (Zingiberaceae):

▶Inhaling the smoke of fresh leaves twice a day for few days cures the chronic headache.

▶Rhizome is made into paste with the help of water. A thick layer of paste is applied on forehead which cures headache.

Cymbopogon citratus (DC) Stapf., Ajiaghas (Poaceae):

▶Infusion of crushed leaves applied on forehead cures headache.

▶Leaves are boiled along with black pepper (**Piper nigrum** Linn., Piperaceae) and ginger (**Zingiber officinale** Roscoe., Zingiberaceae). Concentrated solution taken like tea produces soothing effect on headache.

Cynodon dactylon Linn., Doobghas (Poaceae):

▶Fresh leaves and equal amount of lime (Edible calcium carbonate) is made into paste and applied on forehead cures headache.

Datura stramonium Linn., Dhatura (Solanaceae):

▶One seed is engulfed with water twice daily for a week cures chronic headache.

Daucus carota Linn., Gajar, Carrot (Apiaceae):

▶Pure ghee (curd fat) is applied on leaves and warmed over heat and mashed into paste. Two or three drops of its extract is put into nostrils and ear cures headache due to migraine or cold.

Eclypta alba Linn. (syn. **E. prostrata** Linn.) Bhringraj, Bhangraiya (Asteraceae):

▶Fresh leaves are made into paste with five seeds of black pepper (**Piper nigrum** Linn., Piperaceae). Paste applied on forehead cures headache.

▶Five ml juice of fresh leaves is mixed with five ml. goat milk. It is luke warmed and two drops of mixture is put in both nostrils twice a day for five days cures migraine headache.

Emblca officinalis Gaertn., Awla (Euphorbiaceae):

▶Twenty gm dried fruit of awala (**Emblca officinalis** Linn., Euphorbiaceae) and equal amount of coriander seeds (**Coriandrum sativum** Linn., Apiaceae) are soaked in water in the night. It is filtered in the morning, sufficient amount of sugar candy (mishree) is mixed in the filtrate and taken daily in the morning for a week cures acute headache.

Eucalyptus globulus Linn., Eucalyptus (Myrtaceae):

▶Inhaling the vapour of hot water with few drops of **Eucalyptus** oil cures headache.

▶Fresh leaves are made into paste with isabgol husk (**Plantago ovata** Linn., Plantaginaceae) and applied on forehead cures headache.

▶Leaves and flowers are boiled in 500 ml. of water and its steam is taken through vapourization process which produces relief in headache due to cold and also helps in curing cold & cough.

▶Five drops of eucalyptus oil and five gm. of camphor (kapoor) is boiled in 500 ml. water. Its vapour is taken which cures headache due to sinus pain & irritation.

Ficus benghalensis Linn., Bargad (Moraceae):

▶Milky juice or exudates of tree applied on forehead is beneficial for inflammation of headache due to heat.

Ficus religiosa Linn., Peepal (Moraceae):

▶Three young leaves are chewed very slowly daily for five days to cure headache due to cold & cough.

Geranium maculatum Linn. (Geraniaceae):

International Journal of Interdisciplinary and Multidisciplinary Studies(IJIMS)

▶ One gm. of dried root powder is taken with tea to relieve headache.

Gmelina arborea Roxb., Gambhari, Madhuparnika (Verbenaceae):

▶ Paste of fresh leaves applied on forehead cures headache due to fever.

Helianthus - annuus Linn., Surajmukhi, Sunflower (Asteraceae):

▶ Paste of seeds is warmed with leaf juice of sunflower and applied on forehead and temple of head daily for five days cures hemispherical headache as well as chronic headache.

Hibiscus rosa - sinensis Linn., Gurahal (Malvaceae):

▶ Paste of leaves applied on head as well as forehead cures headache.

Jasminum sambac (Linn.) Ait. (Oleaceae):

▶ Infusion of crushed flowers is applied topically on forehead which cures headache.

Lavandula officinalis Linn. (syn **L. angustifolia** Mill.) Lavender (Lamiaceae):

▶ Few flower buds are boiled in 500 ml. of water. Its infusion or aroma is taken by steaming till the steams come out . After few minutes face will be wet and headache disappears.

▶ Oil extracted from flower bud is rubbed on forehead and temple of head cures chronic headache.

Lawsonia inermis Linn., Mehendi (Lathyraceae):

▶ Paste of leaves is applied on scalp which cures headache.

▶ Flowers are made into paste with rose water and applied on forehead to cure headache.

Leucas aspera Linn., Guma (Lamiaceae):

▶ Juice of flower is applied on forehead is beneficial for headache.

▶ Whole plant is crushed and boiled in a glass of water. Its infusion is inhaled through steaming which cures headache due to sinus, cough and cold.

Linum usitatissimum Linn., Alsi, Flaxseed, Linseed (Linaceae):

▶ Seeds are made into paste with cool water. It is applied on forehead which cures headache.

Ludwigia octovalis (Jacq.) Raven P.H., Launghool, Water primerose (Onagraceae):

▶ Paste of leaves and flower applied on forehead is beneficial for headache.

Madhuca indica Linn. (syn. **M. longifolia** (J.Koing) J. F. Macbr) Mahua (Sapotaceae):

▶ Twenty ml. decoction of fifty gm. flower is taken daily for a week to cure headache due to cough and cold.

Melissa officinalis Linn., Lemon Bam (Lamiaceae):

▶ Herbal tea of leaves or ten ml. extract of fresh leaves is taken orally which produces calming effect and reduces stress headache.

▶ Two or three drops of essential oil obtained by plant is applied on forehead to cure headache.

▶ Two leaves and four flowers are boiled in a glass of water. Its infusion is taken through steaming produces soothing effect on headache.

Melia azadirachta Juss., Bakyan (Miliaceae):

▶ Paste of leaves applied on forehead cures headache.

▶ Paste of flower and equal amount of fresh leaves is topically applied on forehead as well as on the temple of head to cure headache.

Mentha arvensis Linn., Pudina, Mint (Lamiaceae):

▶ Juice of fresh leaves applied on forehead cures headache.

▶ Paste of leaves is applied on forehead cures headache due to heat.

Mentha piperata Linn., Pepper mint (Lamiaceae):

International Journal of Interdisciplinary and Multidisciplinary Studies(IJIMS)

▶ One or two drops of oil extracted from shoot applied on forehead creates soothing effect and cures headache.

▶ Infusion of leaves is taken through steaming produces relief in headache.

Moringa oleifera Linn., Sahjan (Moringaceae):

▶ Fresh leaves are made into paste and applied on forehead to cure headache.

▶ Fresh leaves and five black pepper (**Piper nigrum** Linn., Piperaceae) are made into paste. It is applied on forehead to cure headache.

Mucuna pruriens (Linn.) DC., Velvet bean, Kwanch (Fabaceae):

▶ Paste of leaves is applied on forehead cures headache.

▶ One teaspoonful of seed powder is taken with fresh water or honey to cure all type of headache including migraine as well as chronic headache.

▶ Dried leaves are smoked which produces soothing effect on headache.

Musa paradisiaca Linn., Kela, Banana (Musaceae):

▶ Two ripe fruit are eaten daily for ten days with a glass of luke warm milk. It is anti-stress cures headache due to tension and stress.

Nardostachys jatamansi (D.Don.) DC., Jatamansi, Spikenard (Valerianaceae):

▶ Rhizome is crushed and boiled in 500 ml. of water. Head and pot is covered by towel and its steam is inhaled. The infusion produces cooling sensation on headache.

Naravelia zeylanica (Linn.) DC., Vatanashini (Ranunculaceae):

▶ Paste of leaves or whole plant applied on forehead cures headache.

Nigella sativa Linn., Kalauji, Mangrail (Ranunculaceae):

▶ Seeds are roasted and tied in a cotton cloth. It is smelled continuously after short duration. After few minutes headache due to cold will be disappear.

Nyctanthes arbor-tristis Linn., Harshingar, (Oleaceae);

▶ Leaves are made into paste and applied on forehead cures headache.

▶ Three tender leaves are chewed and engulfed with water produces relief in headache.

Ocimum sanctum Linn., Holy basil, Tulsi (Lamiaceae):

▶ Ten leaves of tulsi and one teaspoonful of dalchini (**Cinnamomum zeylanicum** Linn., Lauraceae) are made into paste with the help of water. Paste is applied on forehead twice a day cures headache.

▶ Inhaling the steam of hot water boiled with ten fresh tulsi leaves and half teaspoonful of fresh or dried ginger (**Zingiber officinale** Roscoe., Zingiberaceae) daily for a week cures headache caused due to sinus.

▶ Two drops of oil extracted from plant is put into nostril cures headache.

▶ Two gm. powder of seeds and leaf is taken with a teaspoonful of honey cures headache due to cold

Origanum vulgare Linn., Marua (Lamiaceae):

▶ Two or three tender shoots having leaves and flower are boiled in five hundred ml. water. Its infusion is taken through steaming twice a day to cure headache.

▶ Paste of fresh leaves and flower is applied on forehead to cure headache.

▶ Essential oil obtained by plants is applied on forehead cures headache.

Oxalis corniculata Linn., Khattibuti (Oxalidaceae):

▶ Leaves are made into paste and equal amount of onion juice (**Allium cepa** Linn., Liliaceae) is mixed to it. It is applied on forehead as well as temple of head cures headache.

Pandanus odoratissimus Linn. (Nom. illeg.), Kevara (Pandanaceae):

International Journal of Interdisciplinary and Multidisciplinary Studies(IJIMS)

▶ Oil is applied on forehead to cure headache.

Pepromia pellucida Kunth., Shiny Bush (Piperaceae):

▶ Few leaves are chewed and indulged with water is beneficial for headache.

▶ Whole plant is cooked and eaten which produces relief.

▶ Paste of leaves or whole plant is applied on forehead cures headache.

Phyllanthus mederaspatensis Linn., Quail grass (Phyllanthaceae):

▶ Leaves are boiled in water and steam is inhaled. Infusion of leaves produces soothing effect on headache.

Piper betle Linn., Paan (Piperaceae):

▶ Paste of fresh leaves applied on forehead produces cooling sensation and analgesic effect on headache.

Piper longum Linn., Peepli (Piperaceae):

▶ Paste of fruit is applied on forehead cures headache.

▶ Fruit powder is boiled in a glass of water and steam is inhaled twice a day to cure headache of cold.

Plantago erosa Wall., Plantains (Plantaginaceae):

▶ Fresh leaves are made into paste and applied on forehead cures headache.

Psidium guajava Linn., Amrud (Myrtaceae):

▶ Raw fruit is rubbed on a stone, the paste obtained is applied on forehead as well as on head which cures hemicranial headache.

Pyrus malus Linn., Seb, Apple (Rosacea):

▶ One or two apple fruit is peeled and chooped and small amount of common salt is sprinkled on it. It is taken with empty stomach followed with luke warm milk. If taken continuously for fifteen days cures chronic headache.

Punica granatum Linn., Anar, Pomegranate (Lytheraceae):

▶ Paste of fresh bark is applied on forehead cures headache.

▶ Decoction of twenty gm fresh flower is taken orally with sufficient amount of honey. It reduces stress and helps to cure headache.

Rauvolfia serpentina (Linn.) Benth. ex. Kurz., Sarpgandha (Apocynaceae)

▶ Half teaspoonful of root powder is taken twice a day for headache due to hypertension.

▶ One gm. powder of root is taken with a glass of milk at bed time in insomnia

Rosmarinus officinalis Linn., Rosmarry (Lamiaceae):

▶ Five leaves are boiled in a cup of water and taken orally like tea produces soothing effect on headache.

▶ Oil extracted from plant is applied on forehead as well as on temple of head cures headache.

▶ Flowers are boiled in a 500 ml. of water and its vapour is inhaled by steaming process which produces relief in headache.

Rosa indica Linn., Gulab, Rose (Rosaceae):

▶ Paste of fresh flower is applied on forehead which cures headache.

▶ Smelling the flower create cooling sensation and cures headache.

Salvia sclarea Linn., Marwa, Calary sage (Lamiaceae):

▶ Three drops extract of fresh leaves put into both nostrils which produces relief in headache.

▶ Paste of fresh leaves is applied on forehead cures headache.

Santalum album Linn., Sandalwood, Chandan (Santalaceae):

▶ Wood is rubbed on stone with the help of water. The paste is applied on forehead which cures headache.

Sapindus mukorossi Gaertn., Reetha (Sapindaceae):

International Journal of Interdisciplinary and Multidisciplinary Studies(IJIMS)

- ▶ Five or six seeds are made into paste with the help of water and applied on forehead cures headache.

Sesbania grandiflora (Linn.) Poir., Agastya (Fabaceae):

- ▶ Two drop extract of fresh flower or leaves is put into both nostrils twice a day cures headache

Sesamum indicum Linn., Saesmeae, Till (Pedaliaceae):

- ▶ Hundred gm. oil of sesame is mixed with ten gm. of camphor (**Cinnamomum camphora** (Linn.) J. Presl. Kapoor, Lauraceae) and ten ml of sandalwood oil (**Santalum album** Linn. Chandan, Santalaceae). Daily massage of oil on the forehead cures headache.

- ▶ Seeds soaked in milk are made into paste and applied on forehead cures headache.

Solanum surattense Burm. f., Bhatkatiya (Solanaceae):

- ▶ Juice of fresh fruit is applied on forehead cures headache.

Solanum nigrum Linn., Makoi (Solanaceae):

- ▶ Fresh leaves are made into paste with two cloves (**Syzygium aromaticum** (Linn.) Merril & Perry, Myrtaceae) is applied on forehead to cure headache.

Sphaeranthus indicus Linn., Mundi, Shrawani (Asteraceae):

- ▶ One teaspoonful juice of flower and fruit is taken and four grinded black pepper (**Piper nigrum** Linn., Piperaceae) are added to it. It is taken twice for five days with the help of water cures chronic headache as well as migraine.

Swertia chirayata (Roxb. ex. Flem.) Karsten., Bitter stick, Chirayita (Genitanaceae):

- ▶ Decoction of whole plant is taken orally which is useful for headache caused by cold and fever.

Syzygium aromaticum (Linn.) Merril & Perry, Laung, Clove (Myrtaceae):

- ▶ Three cloves are made into paste and applied on forehead cures headache.

Tamarindus indica Linn., Imli, Tamarindus (Fabaceae):

- ▶ Fruit pulp is soaked in water for three hours. It is filtered. Sufficient amount of sugar or sugar candy (Mishree) is mixed in the filtrate and taken twice daily cures headache.

Tectona grandis Linn., Sagaun, Teak (Verbinaceae):

- ▶ Wood is rubbed on stone with the help of water. The paste is applied on forehead to cure headache.

Thevetia peruviana (Pers.) Schum., Kaner (Apocynaceae):

- ▶ Flowers are made into paste with small amount of awla powder (**Emblica officinalis** Garten., Euphorbiaceae). Paste applied on forehead cures headache.

- ▶ Yellow leaves powdered and tied in a cotton cloth. It is smelled slightly. Within few minutes person will sneeze and his headache disappears.

Terminalia bellerica (Goertn.) Roxb., Bahera, Babhitki (Combretaceae):

- ▶ Kernels are made into paste and applied on forehead to cure the inflammation of headache.

Terminalia chebula Linn., Hareda (Combretaceae):

- ▶ Paste of seeds is applied on forehead cures headache.

Trachyspermum ammi Spragu., (syn. **Carum copticum** Linn.) Ajwain, Caraway (Apiaceae):

- ▶ Two hundred gm. seeds are roasted and tied in a cotton cloth. It is smelled. After few minutes headache will be disappear with sneezing.

Vanda tasselera (Roxb.) Hook ex. & G. Don, Hajor, Turwari (Orchidaceae):

- ▶ Arial roots are made into paste. It is applied on forehead to cure headache.

Vitex nigundo Linn., Meudi (Verbinaceae):

- ▶ Tender leaves are made into paste and applied on forehead cures headache.

Withania somnifera Dunal., Ashwagandha (Solanaceae):

International Journal of Interdisciplinary and Multidisciplinary Studies(IJIMS)

► Paste of root is applied on forehead as well as five gm. powder of root is mixed with a teaspoonful of honey and taken orally cures headache.

Zea mays Linn., Maize, Makka (Poaceae):

► Paste of young leaves is applied on forehead and on head which cures headache.

Zingiber officinale Roscoe., Ginger, Adarak (Zingiberaceae).

► Dry or fresh ginger and castor root (**Ricinus communis** Linn., Euphorbiaceae) is made into paste and applied on forehead cures headache.

► Five gm ginger is crushed and boiled in a cup of water and is taken orally. It is beneficial for headache as well as migraine.

► Dried ginger is fried in butter or ghee (Fat) and its poultice is prepared. It is smelled for thirty minutes cures headache due to cough and cold.

► **Zingiber officinale** Roscoe., Ginger, Adarak (Zingiberaceae) 5 gm rhizome

Amomum subulatum Linn., Elayachi (Zingiberaceae) ½ gm seed

Ocimum sanctum Linn., Tulsi (Lamiaceae) 5 leaves

Piper nigrum Linn., Black Pepper (Piperaceae) 5 seeds

Cinnamomum zeylanicum Blume., Dalchini (Lauraceae) 2 gm. bark

Syzygium aromaticum (Linn) Merr. & L. M. Perry (Myrtaceae) 2 clove

All the ingredients are boiled in a glass of water and sufficient amount of sugar or sugar candy is added to it and its tea is prepared. It is filtered and taken luke warm which cures any type of headache viz. stress, cough, cold as well as sinus. If taken for a week cures chronic headache as well as migraine. It may be taken with a teaspoonful of honey instead of sugar but if taken with honey it should not be hot, bit warm is okay.

Results

The perusal of the table shows that there are one hundred ten plant species belonging to ninety five genera representing fifty one families used for the treatment of headache. In this study most dominant families are Lamiaceae represented by ten species where as Asteraceae, Caesalpiniaceae, Fabaceae, Liliaceae, Solanaceae and Zingiberaceae represented by four species each; Apocynaceae, Myrtaceae, Poaceae, Piperaceae, Rutaceae, Verbenaceae, with three species each; Amaranthaceae, Apiaceae, Asclepiadaceae, Brassicaceae, Cappariaceae, Lauraceae, Moraceae, Ranunculaceae, Rosaceae, and Oleaceae with two species each and Achyranthaceae, Acoraceae, Acanthaceae, Boraginaceae, Crassulaceae, Cannabinaceae, Euphorbiaceae, Geraniaceae, Linaceae, Moringaceae, Musaceae, Onageraceae, Oxalidaceae, Orchidaceae, Pedaliaceae, Plantaginaceae & Valerianaceae represented by single plant species being used for the treatment of headache. The study also represent that the plants **Achyranthes aspera**, **Asparagus racemosus**, **Caesalpinia bonduc**, **Carissa congesta**, **Calotropis gigantea**, **Cinnamomum zeylanicum**, **Clitoria ternata**, **Daucus carota**, **Mucuna pruriens** **Sphaeranthus indicus** and **Zingiber officinale** are being used for the remedy for migraine headache (hemi-cranial headache) as well as for other headache while **Allium sativum**, **Curcuma longa**, **Datura stramonium**, **Helianthus-anus**, **Lavendula officinalis**, **Pyrus malus**, **Zingiber officinale** are being used for chronic headache; plants viz. **Cestrum**

nocturnum, **Clerodendrum glandulosum**, **Melissa officinalis**, **Musa paradisiaca**, **Punica granatum** and **Rauvolfia serpentina** are being used for headache due to stress and tension. **Gmelina arborea** and **Swertia chirayata** are used for headache due to fever. **Achyranthes aspera**, **Asperagus racemosus**, **Caesalpinia bonduc**, **Carissa congesta** and **Zingiber officinale** are being used for any type of headache. There are many plants described in the text which are being used for the treatment of headache due to cold, sinus, heat, sunstroke and for other causes. Parts of the plant used for medicinal purpose are leaves, buds, flowers, stem, bark, root, rhizome sometimes whole plant. Most of the medicinal plants are used singly but somewhere for better result used with combination of other plants. The herbal therapy used for administration of medicine also varies. Oral administration, topical, and aromatherapy is being used for the treatment. Orally medicine is taken with water, milk, or honey, topically applied on forehead, head or temple of head, infusion of plant is taken by steaming process which is best method of aromatherapy and is very effective for the remedy of headache.

Discussion

Perusal of the result shows that the most dominant family being used in the treatment is Lamiaceae represented by ten number of species. The plants of family Lamiaceae are frequently aromatic. All parts of the plant have rich aromatic compounds viz. terpenoids, carotenoids, ascorbic acids, and phenolic hydrocarbons etc. chemicals constituents which produces essential oils on extraction. Terpenes are main constituents of essential oils. These essential oils are concentrated hydrophobic liquid containing volatile compounds having anti-fungal, anti-bacterial, anti-inflammatory, free radicals inhibitory and antioxidant properties ⁷. These activities produce curative effect and soothing effect on headache. All the plants described in the present communication have specific chemical compounds or secondary metabolites which are the main constituents of the plant used for medicinal value. **Allium** have sulfur rich compounds that contain Allisin and Cystine which has anti hypertensive activity ⁸, **Mucuna pruriens** constitute Levodopa (L-Dopa) which is the direct precursor of dopamine a neurotransmitter. It is used in the treatment of Parkinson's & Alzimers disease. **Ocimum sanctum**, constitutes Eugenol (1-hydroxy-2-methoxy-4-allylbenzene) which is responsible for its therapeutic potential. **Rosmarinus** and **Nigella sativa** constitute Cineole, Caryophyllene, **Zingiber** constitute Gingerol etc. The presentation of chemicals found in each plant will be enormous and it is beyond the scope of this communication. We know that every plant existing in this universe have their own medicinal value. There is no any plant which is non medicinal. Plants are being used as medicine since vedic period because plants constitute hundreds of chemicals or secondary metabolites which are used for the production of medicines ⁹. The phytochemical analysis for the information of active principle of the above mentioned ethnomedicinal plants is warranted so that cheap medicines can be developed without their side effect because when the ethnomedicines are taken no doubt they have least or no side effect but it is being presumed that the harmful chemicals if they are present might be affecting the effect of ethno medicine which will be more effective when taken alone. All chemicals present in ethno medicinal plants are not useful for medicinal purpose but also may be harmful so that it is necessary that these plants to be analyzed chemically and pharmaceutically.

The best natural remedy for the treatment of headache is to go to visit to a natural place. Tracking and walking in natural place, to seeing the captivating view of nature viz. green herbs, shrubs, trees, flowers and different colors of nature, voice of flowing rivers, twittering and singing of birds, feeling of blowing breeze and all the beauty of nature will reduce stress and tension and will be create soothing effect on headahe and it will produce feeling of joy & happiness. It is my own experience and we know that stress and tension are the main causes of any type of headache or other diseases. So it is being

International Journal of Interdisciplinary and Multidisciplinary Studies(IJIMS)

advised to visit to a natural place and spend some time in the lap of nature. We are lucky that we have got God's most precious gift for us that is "Nature".

Conclusion

The study indicated that, the study area is rich in plants having ethno-medicinal properties that may treat various diseases. Through modern medical system is well designed to treat the diseases but the local people dependent on traditional medicine because of their deep rooted tradition and belief in their traditional culture and ayurveda. The knowledge of traditional healthcare is limited to traditional healers, who are living in rural areas. Hence there is a need to preserve the traditional knowledge and its proper documentation before it is lost. The study also highlights the need for further investigation on biochemical and pharmaceutical aspects of this traditional system of medicine because one of the major problem with this herbal formulation is that the active ingredients are not well defined. Therefore, it is important to know the active component and their molecular interaction which will help to analyze therapeutic efficacy of the medicine. It is also important to note here that the rich diversity of study area and its natural beauty is God's most precious gift and needed to be conserved for human welfare and existence of life on earth.

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