



A SURVEY ON TRADITIONAL PLANT-HEALERS OF TERAJ REGION OF UTTAR PRADESH

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ABSTRACT

From time immemorial, plants are source of our medicine as well as nutrition as described in our Vedas, Nighantus and other ancient literature. Apart from being sources of various metabolites like carbohydrates, proteins, lipids and vitamins, they produce various phytochemicals that are used in our primary healthcare. Alkaloids, sterols, terpenes, essential oils, antioxidants that are produced by plants are exploited by the pharmaceutical industries in producing various drugs for cure of different ailments. The correct identification of biofunctional compounds is required for optimization and established the pharmacognosy of the species. We should explore their pharmacological properties without harming the valuable species. So, they can proliferate on mother Earth and continuous to heal us. Terai region of Uttar Pradesh has rich plant biodiversity including a large no. of medicinal plants. Present study is based on questionnaire and field survey of Gorakhpur division, which is located in Terai region of Uttar Pradesh. During our survey, we collected very useful medicinal plants and also recorded the information about its ethnobotanical and traditional uses provided by the local informants.

KEYWORDS: Medicinal Plants, Pharmaceutical, Biofunctional compound, Ayurveda, Terai Region.

INTRODUCTION

Medicinal plants are “Gift of Nature” for us which are available free of any cost to cure us. From time immemorial, herbal plants serve as amazing source of medicines to cure our body. The goal of “*Health for All*” by WHO can’t be achieved without herbal medicines.^[1] Pharmaceutical industry is dependent on the phytochemicals rather than synthesized chemicals, so exploitation of medicinal plant is takes place by these industries and consequently many species of medicinal plant are under threat of extinction.^[2] For a long time, humans have used medicinal plants for therapeutic purposes and in foods and other industries.^[3] According to WHO, up to 80% of people in developing countries are totally dependent on herbal drugs for their primary healthcare and about 85% of traditional medicines are made up of herbal plants.^[4] Due to the awareness about goodness of the herbal medicine, the demand and use of medicinal herb is increases all over the world.^[5] In recent years, there are very progresses in research work and research publication on medicinal herbal plants and thus medicinal properties of various plants have been explored in last few years. China and India are pioneer countries for the production of medicinal plants in the world.^[6] India has strong basic knowledge about healing

properties of herbal plants and due to this reason plants are worshipping from ancient time. In Ayurveda (900-800 BCE), the medicinal properties of many local plants were described. In ancient India, there was many medicinal manuscripts, in which a no. of medicinal plants were described with their medicinal properties [Table-1].^[7] The medicinal plants which is described in our Indian manuscripts, are used in various Indian system of medicine viz. Ayurveda (900-800 BCE), Siddha (800-700 BCE), Unani (450-377 BCE) and Homeopathic (1850 CE) in broad level [Table-2].^[8] According to WHO, about 20,000 medicinal plants are growing in different countries, among which about 10,000 medicinal plants are found in India.^[9] Thus India has great biodiversity in traditional medicinal plants which have important place in our life to improve our health and our life from ancient time.^[10] In Indian pharmaceutical industries, about 90% plants are wild in nature which is used as raw material for this industry.^[11] Each medicinal plant have traditional and ethnic importance. In villages and mostly in tribal group the medicinal plant is used as such in curing peoples instead of their trade medicine. So, exploration of every locality for plant diversity and collection of data about all medicinal plant available in our country is very

necessary before extinction of valuable plant with magical healing properties. The land of Terai region of Uttar Pradesh is very fertile and suitable for growth of various types of plants; wild as well as cultivated. Thus, the Terai region is rich in plant biodiversity, among which many of plants are potent source of valuable biofunctional compounds and is useful in pharmaceutical industry.

AIMS OF THIS STUDY

The aim of this study is to explore the medicinal properties of important medicinal plant of Terai region of Uttar Pradesh, among which some are common in wild state and easy to available, some are rare, some are endangered and some are cultivated at broad level for pharmaceutical and conservation purposes. The aim of this review is to collect the data and properties of common herbal plants which are easily available around us having good curing properties. Exploration of healing properties of these herbal plants can play an important role to fight against various diseases and they can lead revolution in field of pharmacology and traditional uses.

MATERIAL AND METHODOLOGY

The study is done by literature and field survey. Various types of medicinal plants and their properties were reviewed through various research papers, review papers and articles which are available on "Google Scholar", "Pub Med" and "Research Gate". We also studied journals related to medicinal plants, biofunctional molecules and Ethnobotany. The data about uses of medicinal plants for various ailments were based on questionnaires and information from rural people, which were collected during our rural survey in various villages of the selected districts. The study was conducted in all four districts (Gorakhpur, Maharajganj, Deoria, and Kushinagar) of Gorakhpur Division of Uttar Pradesh, India (Fig.1). Pre-structured questionnaire and conversation with local habitants were done on traditional uses of medicinal plants which included male and female participants and practitioners. 35 local people from Gorakhpur District, 15 from Maharajganj District, 30 from Deoria District, and 25 from Kushinagar District (Total 105 People including 75 males and 30 females) participated during the questionnaire. These peoples were workers, farmers, Vaidya, house-women, hakim, forest dwellers and herbal medicine shopkeepers.

Our conversation language to the local people was Hindi and Bhojpuri (local language of this region). Our main focus was on those people, who had more traditional knowledge about herbal plants i.e., Jadi-Buti.

Question during questionnaire was asking regarding:

- Local name of plant.
- Plant part used for healing or cure of the ailment.
- Medicinal and ethnobotanical uses of that plant.

Our collected plant samples were identified by Prof. S.N. Gupta and Prof. K. Shukla, Retd. Professors, Department of Botany, D.D.U. Gorakhpur University, Gorakhpur, Uttar Pradesh, India. We enlisted these plants with their scientific name in alphabetical order, family, habit, plant part used and medicinal uses.

RESULT AND DISCUSSION

In survey of medicinal plants of various area in the Terai region, we got information about various common medicinal herbs, among which some are antihypertensive, some are antidiabetic, some are hepatoprotective, some are nephroprotective, some are Cardioprotective, some have analgesic properties and Some plants have more than one property (multipurpose medicinal plants). The medicines for all kinds of diseases are present on earth in the form of herbal plants [Table-3]. In present era, medicinal plants have high demand because they are good source of many drugs due to the natural factory of phenolics, alkaloids and terpenes. Due to these secondary metabolites, medicinal plants have many curing capacity such as antimicrobial, analgesic, anticancerous, anti-inflammatory etc.^[12] Chyawanprash which is used in large scale in India since many years ago as a natural supplement is completely made up of roots, barks, leaves and fruits of various type of medicinal plants and is used as immunity booster and long life.^[13]

In India, there are several institutes, which are working on Indian herbal medicine, but due to lack of systematic study of vast work, many international websites have no global knowledge about work carried out on various aspects such as phytochemicals, ethnobotanical, pharmacology by our Indian Institutes. Central institute for Medicinal and Aromatic Plants (CIMAP), Lucknow; Indian Council for Medical Research (ICMR), New Delhi; central drugs research institute (CDRI), Lucknow; National Chemical Laboratory (NCL), Pune; International Association for the Study of Traditional Asian Medicine (IASTAM), Mumbai etc. are some well reputed institutes in India which are carried out research on Indian herbal medicinal plants (Vaidya & devasagayam, 2007).^[14] Due to production of secondary metabolites, plants are a best resource for pharmaceuticals and nutrition.^[15] According to Ahmed *et al*, there are various type of indigenous, wild, herbal medicinal plant extract which is used against cancer in fact some plant can cause apoptosis in only neoplastic cell but does not affect the healthy cells.^[16] The review of all plants used as medicine either ancient time or modern time, provide a idea about the significance of various medicinal plants. According to Sushruta Samhita (660 BCE), Sutra Sthana; 36/10:

“गोपालास्तापसा व्याधा ये चान्ये वनचारिणः |
मूलाहाराश्च ये तेभ्यो भेषज व्यक्तिरिष्यते ||”

The meaning of this verse of Sushruta Samhita is “If you want to recognized and know about the properties of

medicinal herb, you can complete this task with the help of cattleman, goatherds, shepherds, recluse, hunter, forest dwellers and who collect the fruits and edible roots of the forest for food and medicine.”

To review the important healing properties of each medicinal plant, survey of modern and ancient literature and questionnaires from rural people both are important to find out all the property of plant. In our study plants, maximum plants are wild herb and have good healing properties.

CONCLUSION

Nature is the “Reservoir of Medicines” for all kinds of ailments. As we know that about more than 40% of medicinal chemicals are derived from the herbal plant, we have a challenge to protect these medicinal plants with increasing human population. With increasing human population, consequently, pharmaceutical companies have a tough task to fulfill the demand of herbal medicine of the growing human population. So, these medicinal plants help us to fulfill the demand of medicine. So knowledge about magical healing properties of all plants available in nature either cultivated or wild is compulsory.

They have enormous type of chemical constituents, which are secondary metabolites of these plants. These chemical constituents are cannot synthesized in laboratory or tremendous work to synthesized in lab but easily obtained by plants. Some medicinal plants are threatened and some are endangered due to their

exploitation for their related healing properties. We can use plant tissue culture method and biotechnology methods to conserve such medicinal plants. It is responsibility of every person to give their efforts for conservation of these valuable plants to save their magical properties for us and our future generation.

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Table 1: Some Medicinal manuscripts of India.^[7]

Medicinal Manuscript of India	No. of Described Med. Plants
Rigveda (1700-1100 BCE)	67 Plants
Yajurveda (1400-1000 BCE)	81 Plants
Atharvaveda (1200 BCE)	290 Plants
Charak Samhita (990 BCE)	341 Plants
Sushruta Samhita (660 BCE)	395 Plants

Table 2: Indian Medicine System.^[8]

Indian system of Medicine	No. of Plant Used/Described
Ayurveda (900-800 BCE)	2000 Plants
Siddha (800-700 BCE)	1121 Plants
Unani (450-377 BCE)	751 Plants
Homeopathy (1850 CE)	482 Plants

Table 3: Medicinal Properties of Some Common Plant of Terai Region of Uttar-Pradesh.^[17-55]

Sr.no.	Plant Name	Family	Habit	Plant Part Used	Medicinal Uses
1.	<i>Abutilon indicum</i> (L.) Sweet.	Malvaceae	Herb	Whole plant	Analgesic, Asthma, Diarrhoea, Antioxidant.
2.	<i>Acacia nilotica</i> (L.) Willd & Delile.	Mimosae	Tree	Leaves, Bark, Gum	Antihypertensive agent, antimicrobial agent, Toothache, Antioxidant activity.
3.	<i>Acalypha indica</i> L.	Euphorbiaceae	Herb	Roots, leaves	Antimalarial, Antidiabetic, Antituberculosis.
4.	<i>Achyranthes aspera</i> L.	Amaranthaceae	Herb	Whole plant	Cardiovascular activity, Jaundice.
5.	<i>Adhatoda vasica</i> Nees	Acanthaceae	Herb	Roots, leaves	Antidiabetic, Antituberculosis, Joint pain, Asthma.
6.	<i>Ageratum conizoides</i> L.	Asteraceae	Herb	Leaves	Treat the Dysentery, Rheumatic pain.
7.	<i>Aloe barbadensis</i> Miller.	Liliaceae	Herb	Leaves	Moisturizing and Antiaging agent, Antidiabetic, Jaundice, Blood Purifier, Appetite stimulant.
8.	<i>Alternanthera sessilis</i> (L.) R.Br. ex DC.	Amaranthaceae	Herb	Whole plant	Antihyperglycemic, Antimicrobial activity, Antioxidant and treat the Diarrhoea.
9.	<i>Argemone mexicana</i> L.	Papaveraceae	Spiny herb	Whole plant	Antihypertensive agent, Wound healing, Antiallergic.
10.	<i>Asparagus racemosus</i> Willd.	Liliaceae	Woody climber	Roots	Antidiabetic, Brain booster, Joint pain, Diarrhoea.

11.	<i>Azadirchta indica</i> A. Juss.	Meliaceae	Tree	Leaves, seeds, barks, fruits	Antimalarial activity, Analgesic, Antihypertensive, Liver problems, Blood purifier, Antioxidant.
12.	<i>Bacopa monnieri</i> (L.) Pennell	Scrophulariaceae	Herb	Leaves	Cardiovascular action, Antidiabetic, Antistress agent, Liver abnormalities, Antioxidant.
13.	<i>Barleria prionitis</i> L.	Acanthaceae	Herb	Whole plant	Toothache, Jaundice, Fever, Urinary infection.
14.	<i>Bauhinia variegata</i> L.	Caesalpiniaceae	Tree	Bark, leaves, seeds, root	Liver problems, Arthritis, Kidney problem,
15.	<i>Boerhavia diffusa</i> L.	Nyctaginaceae	Herb	Whole plant	Diuretic and Laxative, Treat the Jaundice
16.	<i>Butea monosperma</i> (Lam.) Taub.	Fabaceae	Tree	Leaves, bark	Antidiabetic activity, Treat the Cold, Cough, Fever and Diarrhoea.
17.	<i>Callistemon rigidus</i> R.Br.	Myrtaceae	Small tree	Leaves, bark	Respiratory tract infection, Cough, Fever.
18.	<i>Calotropis procera</i> (Ait) R.Br.	Asclepiadaceae	Shrub	Whole plant	Antiasthmatic, Leprosy, Toothache, Joint pain.
19.	<i>Canna indica</i> L.	Cannaceae	Herb	Roots	Hepatic problems, Antioxidant, Antidiabetic, Antimicrobial agent.
20.	<i>Cassia tora</i> L.	Caesalpiniaceae	Woody Herb	Leaves and Seeds	Stomach problem, Antihelminthic.
21.	<i>Catharanthus roseus</i> (L.) G. Don.	Apocynaceae	Herb	Whole plant	Controlling high blood pressure, Anticancer, Antidiabetic.
22.	<i>Centella asiatica</i> (L.) Urb.	Apiaceae	Herb	Whole plant	Cognition, Kidney problems, Asthma, Memory Booster.
23.	<i>Clerodendrum indicum</i> L.	Verbenaceae	Shrub	Leaves, fruits, twigs	Tetanus, Rheumatism, Skin diseases, Hepatitis, Antiasthmatic.
24.	<i>Cyperus rotundus</i> L.	Cyperaceae	Herb	Tubers.	Antidiabetic, Abdominal disorders, Leprosy, Chest pain, Fever.
25.	<i>Datura stramonium</i> L.	Solanaceae	herb	Leaves, fruits, seeds	Skin disease, Fever, Asthma, Hallucinogenic agent.
26.	<i>Decalepis hamiltonii</i> Wight & Arn.	Apocynaceae	Herb	Roots	Blood purifier, Fever, Skin disease, Bronchial Asthma.
27.	<i>Desmodium gangeticum</i> (L.) DC.	Fabaceae	Herb	Whole plant	Dysentery, Typhoid, Asthma, Antidiabetic activity.
28.	<i>Dioscorea bulbifera</i> L.	Dioscoreaceae	Climber	Tubers	T.B., Leprosy, Cough, Cold, Dysentery, Typhoid, Goiter, Antidiabetic, Detoxifier.
29.	<i>Flacourtia jangomas</i> (Lour.) Raeusch	Salicaceae	Small tree	Leaves, bark, fruit	Dysentery, Skin diseases, Throat infections, Bodyaches.
30.	<i>Eclipta prostrata</i> L.	Asteraceae	Herb	Whole plant	Liver tonic, Black hairs, Asthma, Skin diseases
31.	<i>Eucalyptus globulus</i> Labill.	Myrtaceae	Tree	Leaves, bark, fruit	Antidiabetic activity, Liver problems, Antimicrobial agent, Analgesic.
32.	<i>Euphorbia hirta</i> L.	Euphorbiaceae	Herb	Whole plant	Antimicrobial activity, Antioxidant, Cure Diarrhoea, Asthma.
33.	<i>Gloriosa superba</i> L.	Colchicaceae	Tree	Rhizome	Treat of gout, rheumatism, antioxidant activity, Antimicrobial activity.

34.	<i>Heliotropium indicum</i> L.	Boraginaceae	Herb	Whole plant	Amenorrhoea, Child health problem, High blood pressure, Sting and bites of snakes.
35.	<i>Holarrhena pubescens</i> Wall. ex G. Don	Apocynaceae	Herb	Seeds	Antidiabetic, Antioxidant, Antihypertensive, Antimicrobial agent, treat Diarrhoea, Fever, Malaria,
36.	<i>Lantana indica</i> L.	Verbenaceae	Shrub	Roots, leaves	Treat the Tetanus, Rheumatism, Malaria, Intestinal abnormalities.
37.	<i>Leucas aspera</i> (Willd.) Link.	Lamiaceae	Herb	Leaves, Flower	Analgesic, Rheumatism, Mosquito repellent, Tooth problems.
38.	<i>Melia azedarach</i> L.	Meliaceae	Tree	Leaves, Stems	Analgesic activity, liver problem, antibacterial agent.
39.	<i>Mentha piperita</i> L.	Lamiaceae	Herb	Leaves	Analgesic, Cough, Inflammation of Oral mucosa and Throat.
40.	<i>Nigella sativa</i> L.	Ranunculaceae	Herb	Seeds	Antidiabetic, Heart problems, Gastric problem,
41.	<i>Nyctanthes arbor-tritis</i> L.	Oleaceae	Small tree	Leaves	Analgesic, Antirheumatic, Spleen disease, Antipyretic.
42.	<i>Ocimum sanctum</i> L.	Lamiaceae	Shrub	Whole plant	Best home remedy for Cough, Cold and Fever, Antidiabetic, Antihypertensive, Immunity booster, Blood purifier.
43.	<i>Plumbago zeylanica</i> L.	Plumbaginaceae	Shrub	Roots	Diarrhoea, Abdomen problems, Excess amount can cause abortion.
44.	<i>Phyllanthus emblica</i> L.	Phyllanthaceae	Small tree	Fruit, bark, leaves.	Antiaging activity, Immunity booster, Rich source of Vitamin-C, one Constituent of “Triphala”, analgesic.
45.	<i>Polyalthia longifolia</i> (Sonn.) Thwaites	Annonaceae	Tree	Bark.	Antidiabetic, Antimicrobial, Antihypertension, Skin diseases.
46.	<i>Putranjiva roxburghii</i> Wall.	Euphorbiaceae	Tree	Leaves, bark	Antifilaria, Female genital abnormalities, Cough and Cold.
47.	<i>Ranunculus arvensis</i> L.	Ranunculaceae	Herb	Whole plant	Best remedy for Fever, Asthma and Arthritis.
48.	<i>Rauwolfia serpentina</i> (L.) Benth. ex Kurz	Apocynaceae	Shrub	Root, leaves	Analgesic, Antihypertensive, Malaria, Spleen Disorder, Skin disease, Antipsychotic, Pneumonia and Hysteria.
49.	<i>Saraca indica</i> (Roxb.) Willd.	Caesalpinaceae	Small tree	Bark, flowers	Antimenorrhagia, Fever, Ulcer, Antimicrobial properties.
50.	<i>Sida acuta</i> Burm.f.	Malvaceae	Herb	Whole plant	Sciatica, Skin diseases, Hepatic problems, Asthma.
51.	<i>Solanum nigrum</i> L.	Solanaceae	herb	Leaves, fruit	Cough Asthma, Hepatic abnormalities, Rabies, and Skin disease.
52.	<i>Solanum xanthocarpum</i> Schrad & Wendl.	Solanaceae	Spiny Herb	Fruit and Leaves	Antiasthmatic, Antispasmodic agent, Antihypotensive.
53.	<i>Swertia chirayita</i> (Roxb. Ex Flem.) Karsten	Gentianaceae	Herb	Whole plant	Chronic fever, Hepatic problem, Skin disease, Blood purifier, Antidiabetic, Antihypertensive, Mental disorders, Digestive problems.

54.	<i>Terminallia arjuna</i> (Roxb.) Wight & Arm.	Combretaceae	Tree	Bark	Antidiabetic, Nephroprotective, Diuretic, Asthma, Tubercular Cough, Throat sore.
55.	<i>Terminalia bellirica</i> (Gaertn.) Roxb.	Combretaceae	Tree	Fruit	One constituent of “Triphala”, Antidiabetic, Antihypertensive, Analgesic.
56.	<i>Terminalia chebula</i> Retz.	Combretaceae	Tree	Fruit	One ingredient of “Triphala”, Appetite stimulant, Heart disease, Blood purifier, Sore throat.
57.	<i>Thevetia peruviana</i> (Pers.) K. Schum.	Apocynaceae	Small tree	Whole plant	Antitermites, Rheumatism, Antimicrobial activity.
58.	<i>Tinospora cardifolia</i> (Willd.) Miers	Menispermaceae	Climber	Whole plant	Skin diseases, Treat Liver problems, Immunity Booster, Malaria, Fever, Asthma, Arthritis, Heart disease.
59.	<i>Vernonia cinerea</i> (L.) Less.	Asteraceae	Herb	Whole plant	Antioxidant activity, Treat the Tumor, Diarrhoea, Antihyperglycemic activity.
60.	<i>Withania somnifera</i> (L.) Dunal	Solanaceae	Shrub.	Roots, leaves.	Analgesic, Antistress, Memory booster, Antioxidant, Immunity booster, antimicrobial activity.

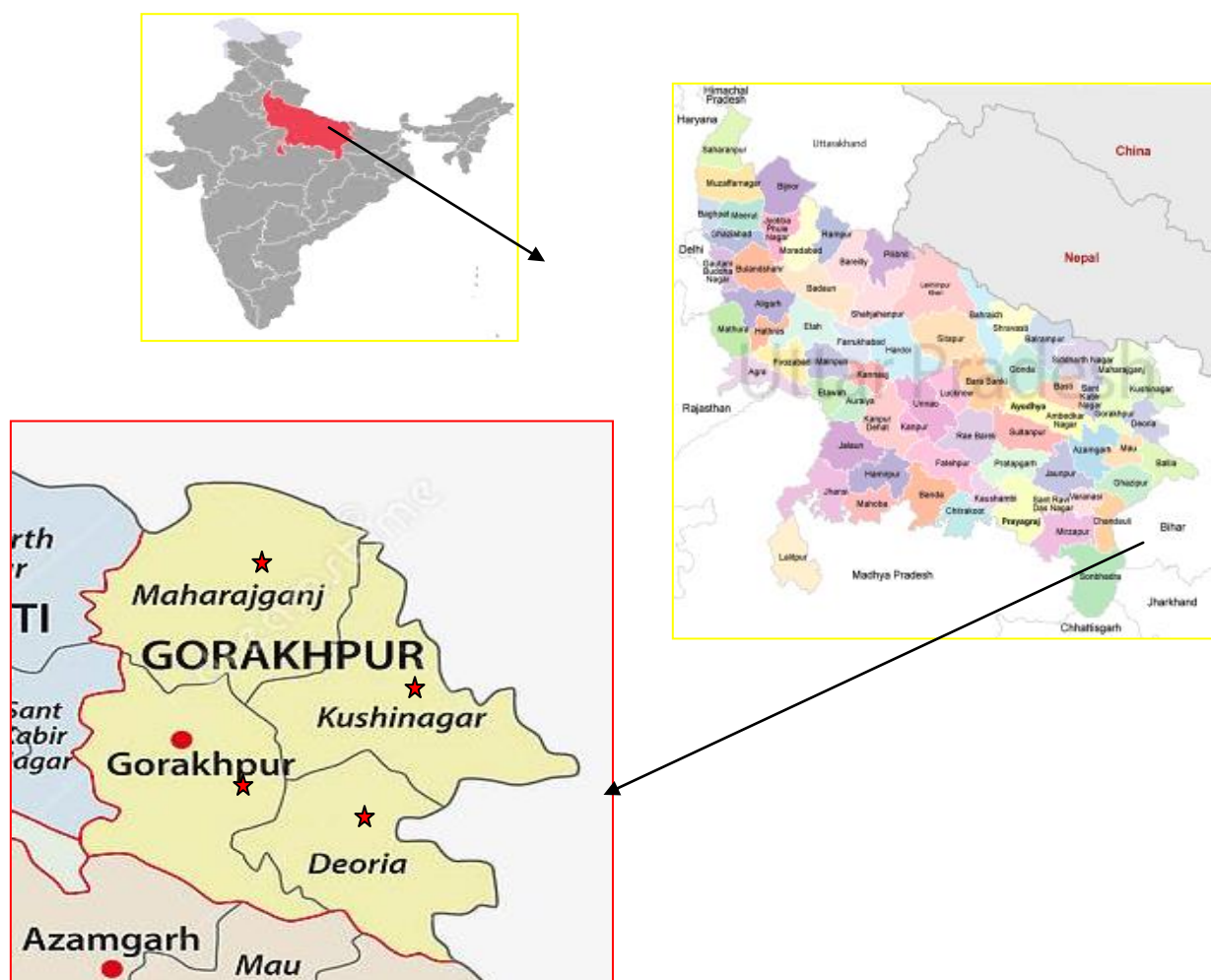


Figure 1: Location of All the Districts Surveyed in the Gorakhpur Division of Uttar Pradesh, India.

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