

## Phytosociological Study of Kushmi Forest Division of Gorakhpur Uttar Pradesh

Sandeep Chaurasia\* and Kalpana Mishra

<sup>1</sup>College of Forestry, Sam Higginbottom University of Agriculture, Technology & Sciences Prayagraj, U.P

\*Corresponding E. mail: [sandeepchaurasia4449@gmail.com](mailto:sandeepchaurasia4449@gmail.com)

### Abstract

Plants are essential to human existence and well-being since they provide us with food, fuel, medicine, and other essentials. However, plants have also been employed in Indian System of Medicine as instruments for traditional medicine. Despite the development of allopathic, herbal, and unani medications, the Indian system of medicine continues to offer the bulk of the population medical treatment at a lower cost and without any adverse effects. Phytosociological study of Kushmi forest division of Gorakhpur Uttar Pradesh was carried out during the 2020-21 with special focus on medicinal forest species. In this study a total 142 plant species with highest tree species (83) followed by shrub species (29) and minimum of herb species (27) recorded in the study area. All 142 plant species, which are utilized to effectively treat various illnesses and belong to 56 families and 127 genera, were catalogued. Assessing the potential of plant resources utilized for traditional treatment by the locals was the goal of a floristic research of ethno-medicinal angiosperm plants. The order of the plant's therapeutic benefits is based on in-depth interviews with village chiefs, ethnic people, and local doctors who practice traditional systems of medicine.

Keywords: Plant species diversity, Phytosociological study, Medicinal properties, Kushmi forest *etc.*

### Introduction

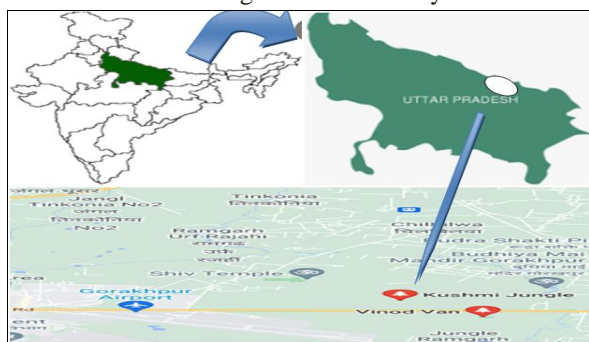
Trees play a very important role for living things in our surrounding and provide us with fresh air to breathe, shade, food, medicine, fuel and other economically benefits and ecological balance to be maintained. These are including provides oxygen to every living creature, preventing soil erosion, producing vegetables, medicines, fruits and maintaining the fertility of the soil. During in present time it good role play to maintain the increase population controlling by the more than plantation of trees. The trees take carbon dioxide and release the oxygen and purifying the air for living creature on earth. For the treatment of a variety of illnesses, traditional medical techniques are very helpful in rural regions (Singh and Singh, 2009). The most significant sources of medicines come from forest trees and plants, and both traditional and contemporary healthcare systems primarily control their use of medicinal plants. According to the World Health Organization (WHO), more than 80% of the world's population relies on conventional pharmaceuticals as their primary form of medical treatment (Singh *et al.*, 2010; Dubey, 2004). Numerous trees, shrubs, herbs,

climbers, animals, and a variety of non-timber forest products, including medicinal and wild edible plants, may be found in the Kushmi Forest, a significant reservoir of plant diversity. India, one of the eight major centers of source due to its wonderful legacy of using plants for traditional health care, is rich in plant biodiversity (Siva, 2007). There are several pteridophytes that are also employed esoterically medicinally in Eastern Uttar Pradesh as part of the value of medicinal weeds, which is a property of angiosperms (Rajkumar *et al.*, 2012). Gorakhpur forest division under provisions contained in forest conservation Act, 1980 has been sought. Total Gorakhpur forest area of the division unchanged 15,276.60 ha (310.10 ha notified under section 5 and 14,966.50 ha notified under section 20 of IFA- 1927). Total forest area of 15276.60 ha notified under section five; Farendra 5076.40 ha followed by Banki (3679.60) ha, Tilkonia (3207.10) ha, Campeargang 3161.10 ha respectively, while minimum was in Gorakhpur 152.40 ha land have per section. But study under the Ramgard forest or Tilkonia section (3207.10) known as Kushmi forest division. The area situated at between 260 35 to 270 17 N latitude and

830 13 to 830 35 E longitude and 78 m above sea level. Kushmi Forests is landscape of full lofty Sal trees and more medicinal plants areas. In 1932 government has taken under these areas and started re-plantation and plantation was completed whole forest area in 1934. Basically under Kushmi forest have some entertainment provisions like Children Park, mini zoo (vinod van park), flower garden, cafeteria and a very historical temple of budhia mai between evergreen forests

**Materials and Methods**

The present investigation entitled “Phytosociological study of Kushmi forest division of Gorakhpur Uttar Pradesh” was conducted in Kushmi forest division which is situated at between 260 35 to 270 17 N latitude and 830 13 to 830 35 E longitude and 78 m above sea level. It is located in the eastern part of Uttar Pradesh and maximum temperature above 40 to 480 c and minimum was recorded as 2 to 50 c respectively. The annual rainfall is 342.9 mm mostly during the monsoon autumn July to September with of few occasional showers during winter months. The work was based on a phytosociological inventory, which included the names in alphabetical order, followed by the botanical name, the Hindi/Local name, the component utilized, and the therapeutic purposes. Local Kushmi Forest residents helped with the collection of plant species from various locations for the current study. Various medicinal forest species, including trees, herbs, shrubs, and grass, were surveyed in the field throughout the course of this study, and samples of the plants were taken from their natural habitats. Additional sequence of plants made regarding medicinal properties about their convention was recorded and integrated in this study.



**Data Collection**

Forest medicinal species data was collected from study area with the consultation of forestry professionals, herbal medicine practitioners and local peoples in a tabular form consisting botanical name, family name, hindi name, plant parts and medicinal uses of selected species.

**Results and discussion**

A general survey of the position of Kushmi forest area was made for the future study. A total number of (142) species belong to (56) families were recorded across the study sites, of which 83 tree species followed by (29) shrub species, (27) herbs species respectively, while minimum was in grass (3) species have found in total species (Table 1 and 2). Total belonging families 56 families were recorded across the study sites shows that maximum number of families is found Moraceae (10) followed by Rubiaceae (7) respectively, while minimum was in Salvadoraceae (1) number of families. The survey employed in this study was primarily focused on significant tree species used for forestry and medicine.

Numerous maladies include weakness, dysentery, colds and coughs, headaches, cuts and wounds, fever, malaria, kidney stones, diarrhea, asthma, jaundice, cancer, pain, typhoid, skin conditions, and piles are treated with these species on a regular basis by local communities (fig.2). Additionally, ayurveda, unani, allopathy, and vaidhya all employ these herbs in various formulations. Despite the necessity to preserve these medicinal species, increased human activity and rapid urbanization are to blame for the preservation of the entire forest.

Data presented in table(2) it shows that the maximum family wise number of plant species 5 to above was (55) species with family number of 9 (Moraceae 10, Rubiaceae 7, Fabaceae 7, Euphorbiaceae 6, Apocynaceae 5, Caesalpiniaceae 5, Anacardiaceae 5 and Salicaceae 5), followed by (66) species 2 to above with number of family 26 with 4 (Moraceae, Combretaceae, Mimosaceae, Poaceae), With 3 (Solanaceae, Rutaceae, Ulmaceae, Boraginaceae, Lamiaceae, Malvaceae), and with 2 (Liliaceae, Oxalidaceae, Lecythidaceae, Nyctaginaceae, Scrophulariaceae, Asclepidaceae, Ebenaceae, Celastraceae, Myrtaceae, Tiliaceae, Lythraceae, Asteraceae, Lauraceae, Bignoniaceae, Verbenaceae and Rhamnaceae) respectively, while the minimum with 1 number of species and family was (21) (Simaroubaceae, Acanthaceae, Phyllanthaceae, Picrodendraceae, Bombaceae, Caricaceae, Cannabinaceae, Capparaceae, Zingiberaceae, Commelinaceae, Cyperaceae, Papilionaceae, Ehretiaceae, Musaceae, Areaceae, Rosaceae, Plumbaginaceae, Brassicaceae, Sapindaceae, Dipterocarpaceae and Salvadoraceae).

**Table 1:** Plant species with botanical name and ethno-medicinal uses of Kushmi forest

S.N.	Botanical Name	Family	Hindi Name	Habit	Part Uses	Medicinal Uses
1.	<i>Ailanthus exeelsa</i>	Simaroubaceae	Mahanimb	T	Bark, Leaf	Indians utilized bark as a potent tonic and fever cure, while the Konkani's used the juice of the leaves and fresh bark as a treatment for post-traumatic discomfort.
2.	<i>Arthocarpus hererophyllus</i>	Moraceae	Kathal	T	Leaf, Root, Fruit	The leaves are used topically to boils, stomachaches, and ulcers. Like the pulp, seeds have aphrodisiac and cooling tonic properties. A root decoction helps treat asthma, skin conditions, and fever.
3.	<i>Aphanamixis polystachya</i>	Meliaceae	Pithraj	T	Bark, Seed	The bark is used as a treatment for chest discomfort, colds, and rheumatism. Rheumatism is treated using a liniment made from the seed's oil.
4.	<i>Amaranthus viridis</i>	Amaranthaceae	Chaulai	H	Leaf	Cooked fresh leaves are collected in heaps.
5.	<i>Anthocephalus cadamba</i>	Rubiaceae	Kadam	T	Bark, Leaf	Paste of bark applied over black spots, pimples and Blood-related diseases. Paste of leaves is affected with localized diabetes, pain and swelling to reduce the complaints.
6.	<i>Adina cordifolia</i>	Rubiaceae	Haldu	T	Bark, Leaf	The paste prepared from the leaves and bark is applied over the wounds for the treatments.
7.	<i>Acacia catechu</i>	Fabaceae	Khair	T	Bark	Additionally helpful for high blood pressure, dysentery, colitis, gastrointestinal issues, bronchial asthma, cough, leucorrhoea, and leprosy, this plant's extract is used to treat sore throats and diarrhea.
8.	<i>Achyranthes aspera</i>	Amaranthaceae	Chirchita or Latzira	H	Whole part	All parts have been used both traditionally and medicinally; it has a strong unpleasant smell used externally or internally.
9.	<i>Alstonia scholaris</i>	Apocynaceae	Chitwan	T	Bark,	It is used in digestive power, skin diseases, liver complaints, dysentery and fever as an antipyretic.
10.	<i>Anogeissus latifolia</i>	Combretaceae	Dhava Bakali	T	Bark	Bark powder is applied externally as paste to treat wounds, localized swelling, skin diseases and jaundice.
11.	<i>Asparagus racemosus</i>	Liliaceae	Satawar	S	Root	For biliousness, root powder mixed with cold water is used as a tonic.
12.	<i>Atropa belladonna</i>	Solanaceae	Sag angur	S	Whole part	It is used for colic, inflammatory bowel disease, motion sickness, and as a painkiller.
13.	<i>Artocarpus lakoocha</i>	Moraceae	Badhal	T	Fruit	Its fruit is edible and is believed to have medicinal value.
14.	<i>Acacia nilotica</i>	Mimosaceae	Babul	T	Whole part	It is used in astringent, tonic, wound healing, aphrodisiac, expectorant, and hepatitis C virus and cancer.
15.	<i>Aegle marmelos</i>	Rutaceae	Bael	T	Fruit	Unripe fruit water extract, dried fruit pulp, and bael leaf all have anti-diarrheal properties.
16.	<i>Adhatoda vasica</i>	Acanthaceae	Adulasa, Vasaka	S	Whole part	All the parts have used for their therapeutic effects from ancient times, particularly in upper respiratory tract diseases such as bronchitis and asthma.

17.	<i>Alternanthera sessilis</i>	Amaranthaceae	Gurra Bhaji	H	Whole plant	For diarrhea and skin conditions, the entire plant is crushed and combined with one teaspoon honey, which is then eaten twice daily for five days.
18.	<i>Albizia lebbek</i>	Mimosaceae	Siris	T	Root	In the event of a snake bite, diluted root paste should be taken orally and regularly until the patient regains consciousness. Additionally, paste is put at the biting spot.
19.	<i>Albazia odoratissima</i>	Mimosaceae	Black Siris	T	Bark	In traditional Indian Medicine, bark is used in the treatment of leprosy, ulcers and cough.
20.	<i>Azadirachta indica</i>	Meliaceae	Neem	T	Leaf, Bark	It is used for anthelmintic, antifungal, antibacterial, and antiviral and antiseptic.
21.	<i>Averrhoa carambola</i>	Oxalidaceae	Carambol, Star fruit	S	Fruit, Leaf	Fruit is used in fever, skin disorders, high blood pressure and diabetes. Leaves are used for asthma, colic, and jaundice.
22.	<i>Barringtonia aculangua</i>	Lecythidaceae	Paniha	T	Root, Leaf	The root is bitter to similar Cinchona, but also cooling and aperients. The leaves are mixed with oil eruptions of the skin.
23.	<i>Bauhinia variegata</i>	Caesalpiniaceae	Kachnar	T	Root	Decoction is used for reducing corpulence.
24.	<i>Bridelia (spreng)</i>	Phyllanthaceae	Kaji, Kassi	S	Bark, Root	The bark of the roots is used in liniment with gingerly oil in rheumatism.
25.	<i>Butea monosperma</i>	Fabaceae	Palash, Dhak	T	Bark, Leaf	For sleep-inducing, antibacterial, and leaf pile applications, stem bark is used. Flower used as astringent and diuretic.
26.	<i>Buchanania lanzan</i>	Anacardiaceae	Chironji	T	Root, Leaf, Fruit	The fruits are used to cure coughs and asthma, the roots to treat diarrhea, the leaves to treat skin conditions.
27.	<i>Boerhaavia diffusa</i>	Nyctaginaceae	Punarnava	H	Whole plant	For kidney stones, it is used twice daily for one month, and heaps of fresh leaves are consumed for a short period of time just before sunrise.
28.	<i>Bauhinia malaberica</i>	Caesalpiniaceae	Amlosa, Amlī	T	Bark, Pods	Pod is used as an astringent in India to treat fever, dysentery, and diarrhea. Leprosy and small pox are treated with a root and bark decoction.
29.	<i>Bacopa monnieri</i>	Scrophulariaceae	Bramhi	S	Whole plant	To treat nerve diseases, the whole plant is dried and ground into a powder. One teaspoon of the powder is combined with cow milk and eaten twice daily for a few days. In cases of fever, the entire plant is infused.
30.	<i>Bischofia javanica</i>	Picrodendraceae	Paniala	T	Root	The roots are used medicinally.
31.	<i>Bambusa vulgaris</i>	Poaceae	Bans	G	Leaf	It is used in hypertension, cardiovascular disease, and certain forms of cancer.
32.	<i>Bauhinia recomosa</i>	Caesalpiniaceae	Kathamuli, Bidi leaf tree	T	Leaf	Leaves have been used in the treatment of asthma and antioxidant effects to fight different bacterial and fungal infections.
33.	<i>Bambax ceiba</i>	Bombaceae	Semal	T	Root	Its powder is taken with milk in morning for the treatment of sexual weakness.
34.	<i>Buddleja asiatica</i>	Scrophulariaceae	Bhati, Dhura, Dhurbana	S	Whole part	The herb has also been used to heal skin conditions and as an abortifacient. Plant juice is used as a wash to treat skin conditions.
35.	<i>Broussonetia</i>	Moraceae	Jangali toot	S	Leaf	For blood sputum, vomiting blood, uterine hemorrhage, and excessive

*Chaurasia and Mishra*

	<i>papyrifera</i>					menstrual bleeding, leaves are utilized.
36.	<i>Citrus limettioides</i>	Rutaceae	Mitha nimbu	S	Fruit	They are rich in vitamin C, flavonoids, acids and volatile oils.
37.	<i>Citrus medica</i>	Rutaceae	Bara neebu	S	Whole part	The fresh shoots, leaves, flowers, fruits and seeds medicinal preparations for the treatment of asthma, arthritis, headache, stomach-ache and intestinal parasites.
38.	<i>Catheranthus roseus</i>	Apocynaceae	Sadabahar	H	Leaf, Root	Tea made from leaves is used to treat malaria and as an anti-cancer agent.
39.	<i>Carica papaya</i>	Caricaceae	Papita	T	Whole part	It's used for treatment of corns, sinuses, glandular tumors, blood pressure, dyspepsia, amenorrhea, constipation and stimulates reproductive organs.
40.	<i>Careya arborea</i>	<i>Lecythidaceae</i>	Kumbhi	T	Bark, Flower	The calices of the flowers and the juice from the bark are both astringent and mucilaginous.
41.	<i>Celosia argentea</i>	Amaranthaceae	Murdha	H	Leaf	For blood cleansing, fresh leaves are mashed and administered orally.
42.	<i>Casearia elliptica</i>	Salicaceae	Chilla, Bhairo	T	Fruit	It is used in diabetes, ascites, wound, snake bite and fever etc.
43.	<i>Cannabis sativa</i>	Cannabinaceae	Bhang	S	Leaf, Fruit	Asthma, cancer, cystitis, dysentery, diuretic, epilepsy, and fever are all treated with it.
44.	<i>Celtis terandra</i>	Ulmaceae	Khirk	T	Seed	In order to alleviate dyspepsia, the seeds' juice is employed.
45.	<i>Casearia graveolens</i>	Salicaceae	Safed-karai	S	Root	When treating piles, the root paste is applied, and jaundice is treated with the juice.
46.	<i>Cleome viscosa</i>	Capparaceae	Hurhur	H	Leaf	For cuts and wounds, boiled leaves are combined with cooled ghee and applied to the injured areas. Applying leaf paste helps to minimize swellies.
47.	<i>Curcuma domestica</i>	Zingiberaceae	Haldi	H	Rhizome	For colds, milk is boiled with turmeric and sugar.
48.	<i>Cordia dichotoma</i>	Boraginaceae	Dela, Lataher	T	Bark, Leaf, Fruit	Fruit is used for the chest, uterus, ringworm urethra and mild tonic. Bark is useful in dyspepsia, boils, tumors, teeth, gargle and fevers. Leaves are useful in ulcers, headache cough and cold.
49.	<i>Commelina bengalensis</i>	Commelinaceae	Kankaua	H	Seed	Dysentery is treated with seed decoction.
50.	<i>Calotropis procera</i>	Asclepiadaceae	Chhota madar	S	Bark, Root	The root and bark of the plant are used to treat worms, elephantiasis, toothaches, cramps, joint discomfort, and other parasitic illnesses.
51.	<i>Calotropis gigantea</i>	Asclepiadaceae	Madar	S	Bark, Root	The root and bark are used to treat joint discomfort, toothaches, cramps, and gastrointestinal issues like ulcers.
52.	<i>Casearia graveolens</i>	<i>Salicaceae</i>	Bayal, Phempri	S	Fruit, Root, Bark	In order to cure viral and cancerous disorders, the fruit's stem, bark, and leaves have been employed. While the juice is used for jaundice, root paste is utilized to cure piles.
53.	<i>Cyperus rotundus</i>	Cyperaceae	Motha	H	Rhizome	For the treatment of malaria, rhizome decoction is administered.
54.	<i>Carissa carandas</i>	Apocynaceae	Karaunda	S	Whole part	Whole parts are used in diarrhea, fever, constipation, pain, epilepsy,



*Chaurasia and Mishra*

						neurological disorder, cough, diabetes and scabies.
55.	<i>Cordia vestita</i>	Boraginaceae	Vairola	T	Bark, Root, Fruits	It is used for gastro-intestinal problems, rheumatism, chest infection and wound and fever.
56.	<i>Cynodon dactylon</i>	Poaceae	Doob ghas	G	Whole plant	For dysentery, the entire plant is crushed, and the juice is consumed.
57.	<i>Diospyros tomentosa</i>	Ebenaceae	Tendu	T	Bark, Fruit, Seed	It is used in skin complexion and quality, helps to relieve diarrhea.
58.	<i>Desmostachya bipinnata</i>	Poaceae	Dhab	H	Root	Root infusion is used for urinary problems and jaundice.
59.	<i>Diospyros cordifolia</i>	Ebenaceae	Bistendu	T	Fruit	The fruit juice is consumed in conditions of diarrhea and fever and applied topically to wounds and ulcers.
60.	<i>Dalbergia sissoo</i>	Papilionaceae	Shisham	T	Folk, Leaf, Bark	Folk is used for the gonorrhoea and skin ailments. Leafy juice for eye ailments and the woody bark paste as antipyretic.
61.	<i>Desmodium triflorum</i>	Fabaceae	Tinpatia	H	Leaf	Fresh leaves juice is mixed with water and taken twice daily for few days.
62.	<i>Delonix regia</i>	Fabaceae	Gulmohar	T	Folk	It is used in constipation, inflammation, rheumatoid arthritis, diabetes and malaria.
63.	<i>Dalbergia latifolia</i>	Fabaceae	Saksal, Satsal	T	Bark	Bark is used to treatment of diarrhea, worms, indigestion, and leprosy.
64.	<i>Emblica officinalis</i>	Euphorbiaceae	Amla	T	Leaf, Fruit	Most commonly used for hair care, asthma, boils, chicken pox, headaches, and boils.
65.	<i>Ehretia leavis</i>	Boraginaceae	Chamraud, Datranga	S	Bark	bark is used in the treatment of ulcers and headaches
66.	<i>Elaeodendron glaucum</i>	Celastraceae	Jamrasi	T	Bark	The bark is astringent, is also considered poisonous and barks paste is rubbed in water and applied for swellings.
67.	<i>Eucalyptus citriodora</i>	Myrtaceae	Eucayptus	T	Leaf	Back discomfort, bronchitis, cold sores, cuts, and wounds can all be treated with it.
68.	<i>Elretia acuminata</i>	Ehretiaceae	Pandayan	T	Bark	Fever can be treated by using the bark's juice.
69.	<i>Erianthus munja</i>	Poaceae	Sarkanda/ Munja	G	Root	Root is used to blood impurity, excessive burning sensation, and improving the breast milk in lactating women.
70.	<i>Euphorbia hirta</i>	Euphorbiaceae	Dudhi	H	Whole plant	Oral administration of whole-plant juice is used to treat dysentery as well as intestinal worms.
71.	<i>Erythrina suberosa</i>	Fabaceae	Coral tree/ Farhad	T	Bark, Leaf	Bark is used in liver ailments, fever and rheumatism and leaf juice is used as ear drop to relieve ear pain and antiseptic.
72.	<i>Ficus palmate</i>	Moraceae	Anjeer	S	Fruit	Constipation, lung, and bladder disorders can all be treated with fruit as part of a healthy diet.
73.	<i>Flacourtia indica</i>	Salicaceae	Bilangada, Katala	S	Root, Leaf,	The bark is used to cure arthritis, cough, pneumonia, and bacterial throat

*Chaurasia and Mishra*

					Bark	infections, while the leaves and roots are used to treat snakebite in herbal therapy.
74.	<i>Ficus religiosa</i>	Moraceae	Pipal	T	Root	In cases of chicken pox, sugar and adventurous roots are administered with fresh water.
75.	<i>Ficus begalensis</i>	Moraceae	Bargad	T	Bark, Leaf	The leaves and bark are helpful for ulcers, severe skin conditions, and burning sensations. Additionally, it can be utilized for toothaches and irritation.
76.	<i>Ficus racemosa</i>	Moraceae	Gular	T	Whole Parts	Diarrhea, diabetes, dysentery, jaundice, and bleary problems have all been treated with it.
77.	<i>Ficus lacor</i>	Moraceae	Pakad	T	Bark	It is used to treat leucorrhea, mouth ulcers, diarrhea, bleeding problems, herpes, and herpes herpes.
78.	<i>Ficus rumphii</i>	Moraceae	Pilkhan/Parasia	T	Leaf	The boiled leaves are useful in burning sensations, leucoderma, ulcers, leprosy, itching, biliousness and diseases of blood.
79.	<i>Gmelina arborea</i>	Lamiaceae	Gamhar	T	Root, Fruit, Leaf	It used in antimicrobial, anti-diabetic, anti-aging, analgesic, diuretic and hepatic-protective.
80.	<i>Gloriosa superba</i>	Liliaceae	Kalihari	S	Root	For a month, joints that are in discomfort are treated by applying a decoction of root combined with filtered sesame oil, followed by massage.
81.	<i>Grewia tiliacifolia</i>	Tiliaceae	Falsa, Dhamni	T	Bark, Fruit	It is used in treating non-healing wounds, ulcerative colitis, menorrhagia, cough etc.
82.	<i>Gompherena celosoides</i>	Amaranthaceae	Kassia	H	Whole plant	It is used to treat snake bites, wounds, vomiting, and skin conditions.
83.	<i>Gardenia latifolia</i>	Rubiaceae	Papra	T	Leaf, Bark, Fruit	It is used in curing skin diseases, vomiting, wounds, and snake bite.
84.	<i>Grewia asiatica Linn.</i>	Tiliaceae	Phalsa	T	Root	Before retiring to bed, backache sufferers apply root paste to their backs.
85.	<i>Gymnosporia spinosa</i>	Celastraceae	Vaincal	S	Leaf	Leaves are used for treatment of liver diseases, anticancer activity, tooth and eye disorders.
86.	<i>Holoptelea integrifolia</i>	Ulmaceae	Chilbil	T	Bark, Leaf	Bark and leaf paste are applied for the white patches or leucoderma, vomiting, leprosy and diabetes,
87.	<i>Hibiscus-rora-sinensis</i>	Malvaceae	Gurhal	S	Flower, Root	Flowers are good treatment of carbuncles, mumps, fever and sores. Root is applied in coughs, colds and venereal diseases.
88.	<i>Hymenodictyon excelsum</i>	Rubiaceae	Bhurkul, Baurang	T	Bark, Leaf	Bark is used in fever, diarrhea and dysentery. Leaves boiled in water used as bath in the treatment of jaundice.
89.	<i>Kydia calycina roxb</i>	Malvaceae	Pula, Bor-anga	T	Leaves, Root, Bark	It is used in skin disease, hyperglycemia, anti- anticancer, antifungal, antioxidant, febrifuge and nutritional important.
90.	<i>Lagerstroemia parviflora</i>	Lythraceae	Dhauri, Bakli,	T	Bark	The bark is used as a black dye.
91.	<i>Leucas aspera</i>	Lamiaceae	Guma	H	Leaf	For a week when you have a fever, take 15ml of the prepared leaf decoction.

*Chaurasia and Mishra*

92.	<i>Lawsonia inermis</i>	Lythraceae	Mehndi	S	Bark, Root, Leaf	Bark and root are used for the liver enlargement and jaundice. Leaves are used to hair color and cure sunburn.
93.	<i>Launaea procumbens</i> <i>Roxb</i>	Asteraceae	Jangali Gobhi	H	Root	In cases of dysentery, three days of honey and crushed root extract are recommended.
94.	<i>Lannea coromandenlica</i>	Anacardiaceae	jigana	S	Bark, Leaf	It is used in hepatitis, diabetes, ulcers, heart disease, and dysentery.
95.	<i>Litsea monopetala</i>	Lauraceae	Meth, meda	T	Leaf, Seed	The leaves are used treatment of arthritis and oil seed is used medicinally in India.
96.	<i>Mangifera indica</i>	Anacardiaceae	Aam	T	Fruit, Leaf, Bark	Mango bark, fruit and leaves are used in anemia, cetaceous infections, diabetes, diarrhea, scabies and malignant tumors.
97.	<i>Mallotus philippensis</i>	Euphorbiaceae	Sindure	T	Fruits	It is utilized topically to treat skin conditions in worms.
98.	<i>Mirabilis jalapa</i>	Nyctaginaceae	Gulbans	S	Root	Over wounds, root paste is administered.
99.	<i>Mitragyna parvifolia</i>	Rubiaceae	Faldu, Kaim,	T	Bark, Roots	It treats edoema, gynecological diseases, colic, muscle discomfort, burning feeling, cough, and poisoning.
100.	<i>Madhuca indiaca</i>	Lauraceae	Mahua	T	Root	To remove intestinal worms, root paste is consumed every night for three days straight, while Mahua liquor is applied topically to joints to relieve pain.
101.	<i>Mimosa pudica</i>	Mimosaceae	Chui-mui	H	Whole parts	It is used in the treatment of diarrhea, anti-diabetic, liver protecting, ulcers and pile.
102.	<i>Musa paradistica</i>	Musaceae	Kela	H	Root	Typhoid is treated with a morning dose of a mixture of banana root and saffron stamens.
103.	<i>Melia azaderach</i>	Meliaceae	Bakain	T	Whole parts	It is used in malaria, typhoid, diabetes, pain tooth, snake bite, skin diseases leprosy and hair growth.
104.	<i>Morus alba</i>	Moraceae	Shahtoot	T	Root	Tea of root is given in diarrhea.
105.	<i>Nerium indicum</i>	Apocynaceae	Kaner	T	Root	To treat inflammation in the ear, use roots that have been crushed and cooked in ghee.
106.	<i>Oroxylum indicum</i>	Bignoniaceae	Bhutvriksha, Uloo	T	Root Bark	It is used in fevers, bronchitis, vomiting, dysentery, leucoderma and asthma.
107.	<i>Ocimum sanctum</i>	Lamiaceae	Tulsi	H	Root, Leaf	Decoction in malarial fever, coughs, cold, pain and eye drops.
108.	<i>Oxalis corniculata</i>	Oxalidaceae	Khatti Buti	H	Leaf	In dysentery, the whole plant is crushed, combined with curd, and consumed orally.
109.	<i>Pongamia pinnata</i>	Fabaceae	Karanj	T	Seed	Seeds are medicinally used in treatment of rheumatism.
110.	<i>Physalis minima</i>	Solanaceae	Rasbhari, Makoi	H	Fruit	For stomach aches, cooked fruits are used.
111.	<i>Phoenix dactylifera</i>	Arecaceae	Khajur	T	Fruit	Fruits are used in colds, bronchial asthma, to relieve fever, cystitis and liver.



*Chaurasia and Mishra*

112.	<i>Putranjiva roxburghii</i>	Euphorbiaceae	Patranjiva	T	Fruit, Leaf	It is used for treating cold, fever and pregnant women to prevent miscarriage.
113.	<i>Phyllanthus niruri</i>	Euphorbiaceae	Bhumi Amla	H	Whole Plant	Whole-plant juice is a strong source of vitamin C and is used to treat jaundice.
114.	<i>Pterocarpus marsupium</i>	Fabaceae	Bijaisal	T	Bark, Leaf	To cure boils, lesions, and other skin conditions, it is used externally.
115.	<i>Pyrus communis</i>	Rosaceae	Naakphal	T	Fruit	Fiber, vitamins, calories, minerals, sugar, and diabetes are all found in good amounts in it.
116.	<i>Plumbago zeylanica</i>	Plumbaginaceae	Chitra	H	Root	Three to five drops of the solution are placed in the ear to treat discomfort and bleeding after crushed roots have been cooked in mustard oil and filtered.
117.	<i>Premna latifolia</i>	verbenaceae	Bakad/Arni	S	Root	It is used in prescribed in liver complaints, cold, dashamula, fever, and urticaria.
118.	<i>Raphanus sativus</i>	Brassicaceae	Muli	H	Root	Root juice is used to treat syphilis and urinary problems.
119.	<i>Rauwolfia serpentina</i>	Apocynaceae	Sarapandha	S	Root, Leaf, Stem	It is used to treat fever, exhaustion, insomnia, mental illness, cancer, high blood pressure, diabetes, and liver problems.
120.	<i>Randia uliginosa</i>	Rubiaceae	Perar /Jasmin	T	Fruit	Fruits are used to treat diarrhea, cholera, dysentery, migraine, pimples and boils
121.	<i>Spondias pinnata</i>	Anacardiaceae	Amera/ Ambara	T	Fruit	Fruit is used in the treatment of bilious dyspepsia and bark paste is applied for the rheumatism and swollen joints.
122.	<i>Sida cordifolia</i>	Malvaceae	Bariyara	H	Root	Root extract is used once every three days for constipation.
123.	<i>Schliechera oleosa</i>	Sapindaceae	Kusum	T	Seed, Bark	Seed powder is used in ulcers and wounds of cattle to remove maggots and bark is used for skin inflammations and ulcers.
124.	<i>Syzygium cumini</i>	Myrtaceae	Jamun	T	Leaf, Fruit, Bark	Seeds powder is used for treating diabetes, sugar and leaves are useful for teeth gum disease and blood purifier.
125.	<i>Solanum nigrum</i>	Solanaceae	Kali-makoi	H	Root	Fever can be treated with root decoction.
126.	<i>Sterospermum suaveolens</i>	Bignoniaceae	Pandara	T	Root, Fruit, Bark	It is used for indigestion, hiccups, vomiting, diarrhea, pain, fever, diabetes, liver disorders and asthma.
127.	<i>Shorea robusta</i>	Dipterocarpaceae	Sal	T	Bark, Leaf	It is used in cooling, pain-relieving, urinary astringent, Tonic and purifying.
128.	<i>Saraca asoca</i>	Caesalpinaceae	Ashok	T	Bark, Leaf, Flower	It is used for the fever, skin, cancer, breast cancer, and diabetes and dysmenorrheal.
129.	<i>Salix tetrasperma</i>	Salicaceae	Bhaisa, Bed-laila	T	Leaf, Bark	Dried leaves mixed with sugar in venereal diseases, stone in the bladder, piles and swellings. Bark is used to treat fever.
130.	<i>Semecarpus anacardium</i>	Anacardiaceae	Bhela, Varnish tree	T	Fruit	It is used in antioxidant, anti-reproductive, CNS stimulant, hypoglycemic and hair growth promoter.
131.	<i>Salvadora oleoides</i>	Salvadoraceae	Meethajal	S	Leaf	The leaves are used to relieve piles, cough and asthma.
132.	<i>Terminalia arjuna</i>	Combretaceae	Arjun	T	Bark	It is used in angina pain, hypertension, congestive heart failure, and dyslipidemia.

133.	<i>Tamarindus indica</i>	Caesalpinaceae	Imli	T	Fruit, Bark	It is used to treat respiratory issues, fever, malaria, stomach discomfort, diarrhea, and parasite infection.
134.	<i>Tridax procumbens</i>	Asteraceae	Phulana	H	Leaf	On cuts and wounds, leaf juice is administered.
135.	<i>Trewia nudiflora</i>	Euphorbiaceae	Gutel/White teak	T	Leaf,	It's applied for swellings and in healing of wounds and injuries.
136.	<i>Trema orientalos</i>	Ulmaceae	Jiyani/Charcoal tree	T	Leaf, Bark	It is used to treat coughs, asthma, bronchitis, gonorrhoea, yellow fever, toothache and bark is control to dysentery.
137.	<i>Terminalia belerica</i>	Combretaceae	Bahera	T	Laef, Bark	It is used to treat coughs, sore throats and asthma.
138.	<i>Terminalia chebula</i>	Combretaceae	Harad	T	Whole parts	It is used in the digestive diseases, ulcers, diabetes, heart diseases, urinary diseases, fever, skin diseases, and vomiting.
139.	<i>Toona ciliata</i>	Meliaceae	Toon, Red-cedar	T	Leaf	It is useful in cures fever, blood complaints, cardio tonic and ulcer.
140.	<i>Tectona grandis</i>	Verbenaceae	Sagaun	T	Flower, wood, leaf	Flower and wood is used in urinary discharges, hair tonic, swellings. Leaves are used in anemia, fever and malaria.
141.	<i>Zazyphus mauritiana</i>	Rhamnaceae	Ber	T	Fruit	The fruit is used for diabetes, high levels of cholesterol and insomnia.
142.	<i>Ziziphus mummularia</i>	Rhamnaceae	Jharber	S	Fruit	It is used for cold, mental retardation, in dysentery, diarrhea, fever and colic.

Data presented in table (2) it shows that the maximum family wise number of plant species 5 to above was (55) species with family number of 9 (Moraceae 10, Rubiaceae 7, Fabaceae 7, Euphorbiaceae 6, Apocynaceae 5, Caesalpinaceae 5, Anacardiaceae 5 and Salicaceae 5), followed by (66) species 2 to above with number of family 26 with 4 (Moraceae, Combretaceae, Mimosaceae, Poaceae), With 3 (Solanaceae, Rutaceae, Ulmaceae, Boraginaceae, Lamiaceae, Malvaceae), and with 2 (Liliaceae, Oxalidaceae, Lecythidaceae, Nyctaginaceae, Scrophulariaceae, Asclepidaceae, Ebenaceae, Celastraceae, Myrtaceae, Tiliaceae, Lythraceae, Asteraceae, Lauraceae, Bignoniaceae, Verbenaceae and Rhamnaceae) respectively, while the minimum with 1 number of species and family was (21) (Simaroubaceae, Acanthaceae, Phyllanthaceae, Picrodendraceae, Bombaceae, Caricaceae, Cannabinaceae, Capparaceae, Zingiberaceae, Commelinaceae, Cyperaceae, Papilionaceae, Ehretiaceae, Musaceae, Arecaceae, Rosaceae, Plumbaginaceae, Brassicaceae, Sapindaceae, Dipterocarpaceae and Salvadoraceae).

The data on number of treatment medicinal species uses in disease of the study area presented in table (3), shows that maximum number of treatment found in cough & cold (53) followed by joint pain (33), fever 28, snakebite 26, ulcer 25, rheumatism 24, malaria and skin disease 22, antiseptic 21, diarrhea and boils 20, pain 19, jaundice & wounds 17, piles & diabetes 16, asthma 15, dysentery, liver & toothache 14, cancer & cramps 13, swelling, digestion, pimples & worms 12, arthritis 11, leprosy, tumor & viral disease 10, fungal disease, blood pressure & gastric 9, blood disease, leucorrhoea, hepatitis, hypertension & scabies 8, vomiting & sexual weakness 7, kidney stone & antibacterial 6, blood spots, small pox, bleeding & gonorrhoea 5 while minimum was in elephantiasis 4. In this way, 668 types of treatment were found in 48 types of disease in whole species.

Table 2: The family's habitual contribution to genera and species

S/N.	Family	Trees		Shrubs		Herbs		Grass	
		Genus	Species	Genus	Species	Genus	Species	Genus	Species
1.	Simaroubaceae	1	1	-	-	-	-	-	-
2.	Moraceae	3	8	2	2	-	-	-	-
3.	Meliaceae	4	4	-	-	-	-	-	-
4.	Amaranthaceae	-	-	-	-	5	5	-	-
5.	Rubiaceae	1	7	-	-	-	-	-	-
6.	Fabaceae	6	6	-	-	1	1	-	-
7.	Apocynaceae	2	2	2	2	1	1	-	-
8.	Combretaceae	4	4	-	-	-	-	-	-
9.	Liliaceae	-	-	2	2	-	-	-	-
10.	Solanaceae	-	-	1	1	2	2	-	-
11.	Mimosaceae	3	3	-	-	1	1	-	-
12.	Rutaceae	1	1	2	2	-	-	-	-
13.	Acanthaceae	-	-	1	1	-	-	-	-
14.	Oxalidaceae	-	-	1	1	1	1	-	-
15.	Lecythidaceae	2	2	-	-	-	-	-	-
16.	Caesalpiaceae	5	5	-	-	-	-	-	-
17.	Phyllanthaceae	-	-	1	1	-	-	-	-
18.	Anacardiaceae	4	4	1	1	-	-	-	-
19.	Nyctaginaceae	-	-	1	1	1	1	-	-
20.	Scrophulariaceae	-	-	2	2	-	-	-	-
21.	Picrodendraceae	1	1	-	-	-	-	-	-
22.	Poaceae	-	-	-	-	1	1	1	3
23.	Bombaceae	1	1	-	-	-	-	-	-
24.	Caricaceae	1	1	-	-	-	-	-	-
25.	Salicaceae	2	2	1	3	-	-	-	-
26.	Cannabinaceae	-	-	1	1	-	-	-	-
27.	Ulmaceae	3	3	-	-	-	-	-	-
28.	Capparaceae	-	-	-	-	1	1	-	-
29.	Zingiberaceae	-	-	-	-	1	1	-	-
30.	Boraginaceae	2	2	1	1	-	-	-	-
31.	Commelinaceae	-	-	-	-	1	1	-	-
32.	Asclepiadaceae	-	-	2	2	-	-	-	-
33.	Cyperaceae	-	-	-	-	1	1	-	-
34.	Ebenaceae	2	2	-	-	-	-	-	-
35.	Papilionaceae	1	1	-	-	-	-	-	-
36.	Euphorbiaceae	4	4	-	-	2	2	-	-
37.	<i>Celastraceae</i>	1	1	1	1	-	-	-	-
38.	Myrtaceae	2	2	-	-	-	-	-	-
39.	Ehretiaceae	1	1	-	-	-	-	-	-
40.	Lamiaceae	1	1	-	-	2	2	-	-
41.	Tiliaceae	2	2	-	-	-	-	-	-
42.	Malvaceae	1	1	1	1	1	1	-	-
43.	Lythraceae	1	1	1	1	-	-	-	-
44.	Asteraceae	-	-	-	-	2	2	-	-
45.	Lauraceae	2	2	-	-	-	-	-	-
46.	Musaceae	-	-	-	-	1	1	-	-
47.	Bignoniaceae	2	2	-	-	-	-	-	-
48.	Arecaceae	1	1	-	-	-	-	-	-
49.	Rosaceae	1	1	-	-	-	-	-	-
50.	Plumbaginaceae	-	-	-	-	1	1	-	-
51.	verbenacee	1	1	1	1	-	-	-	-
52.	Brassicaceae	-	-	-	-	1	1	-	-
53.	Sapindaceae	1	1	-	-	-	-	-	-

54.	Dipterocarpaceae	1	1	-	-	-	-	-	-
55.	Salvadoraceae	-	-	1	1	-	-	-	-
56.	Rhamnaceae	1	1	1	1	-	-	-	-
	<b>Total</b>	72	83	27	29	27	27	1	3

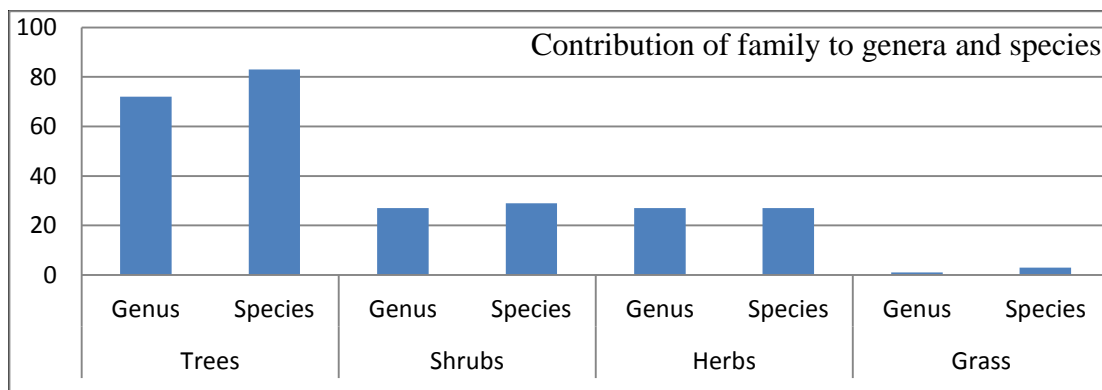
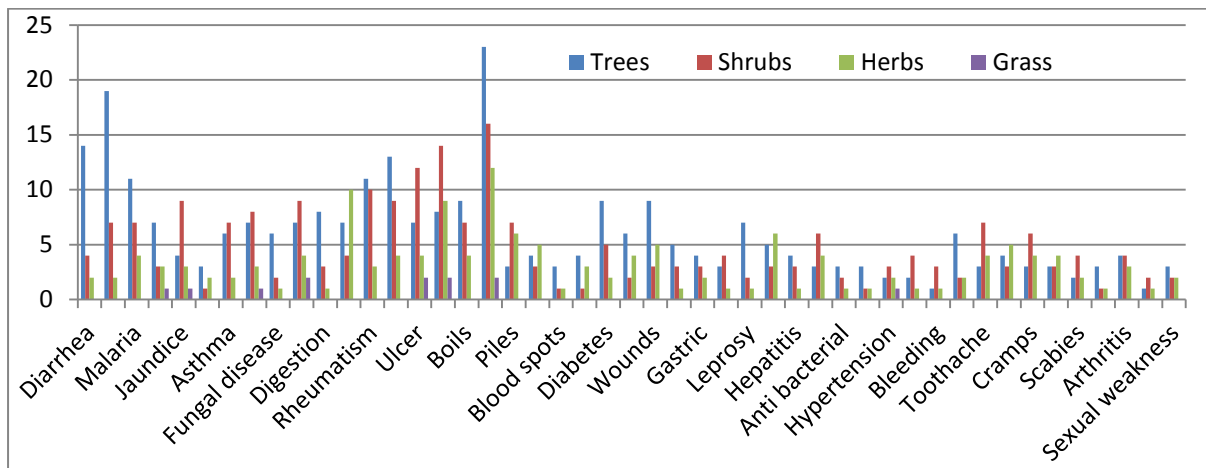


Fig 1: Contribution of family to genera and species

Table: 3 Disease wise contributions of medicinal uses plant species

S. N.	Disease	Trees	Shrubs	Herbs	Grass
1.	Diarrhea	14	4	2	-
2.	Fever	19	7	2	-
3.	Malaria	11	7	4	-
4.	Dysentery	7	3	3	1
5.	Jaundice	4	9	3	1
6.	Kidney stone	3	1	2	-
7.	Asthma	6	7	2	-
8.	Pain	7	8	3	1
9.	Fungal disease	6	2	1	-
10.	Skin disease	7	9	4	2
11.	Digestion	8	3	1	-
12.	Antiseptic	7	4	10	-
13.	Rheumatism	11	10	3	-
14.	Snake bite	13	9	4	-
15.	Ulcer	7	12	4	2
16.	Joint pain	8	14	9	2
17.	Boils	9	7	4	-
18.	Cough & cold	23	16	12	2
19.	Piles	3	7	6	-
20.	Pimples	4	3	5	-
21.	Blood spots	3	1	1	-
22.	Blood disease	4	1	3	-
23.	Diabetes	9	5	2	-
24.	Swelling	6	2	4	-
25.	Wounds	9	3	5	-
26.	Blood pressure	5	3	1	-
27.	Gastric	4	3	2	-
28.	Leucorrhoea	3	4	1	-
29.	Leprosy	7	2	1	-
30.	Liver	5	3	6	-
31.	Hepatitis	4	3	1	-
32.	Cancer	3	6	4	-

33.	Anti-bacterial	3	2	1	-
34.	Small pox	3	1	1	-
35.	Hypertension	2	3	2	1
37.	Vomiting	2	4	1	-
38.	Bleeding	1	3	1	-
39.	Tumor	6	2	2	-
40.	Toothache	3	7	4	-
41.	Worms	4	3	5	-
42.	Cramps	3	6	4	-
43.	V. Disease	3	3	4	-
44.	Scabies	2	4	2	-
45.	Gonorrhea	3	1	1	-
46.	Arthritis	4	4	3	-
47.	Elephantiasis	1	2	1	-
48.	Sexual weakness	3	2	2	-
	<b>Total</b>	<b>282</b>	<b>225</b>	<b>149</b>	<b>12</b>



**Fig 2:** Disease wise contributions of medicinal uses plant species

### Conclusion

The taxonomic critical understanding challenges in the 21st century conservation of phytosociological study on Kushmi forest medicinal species. The fundamental importance of the biodiversity and constituents used in preparation a range of medicinal properties through scientific analysis. The research gives a general overview of the woody and non-woody plant species currently present in the forest. In this study a total 142 plant species

with highest tree species (83) followed by shrub species (29) and minimum of herb species (27) recorded in the study area. In order to preserve the sustainable usage of the region's phytosociological development, forest resources are crucial for the local and regional population today and in the future. The habitat and cultural significance of these forest species can also be provided via forest products.

### REFERENCE

Chaudhary, R. S. (2010). Taxa of family Fabaceae: A potential of local medicinal values in Vindhya Region Uttar Pradesh, India. *International Journal of Pharma and Bio Sciences* 1(4): B 46-53.

Chaurasia, Sandeep., Hemant Kumar, Kumud Dubey and Yogesh K Agarwal (2020). Assessment of

Growing Stock, Above Ground Biomass and Sequestered Carbon in Sal Dominated Kushmi Forest Gorakhpur. *Indian Forester*, 146(11): 1041-1045.

Dixit, R.D., Pandey, H.C. (1984). Plants used as folk medicine in Jhansi and Lalitpur sections of

- Bundelkhand, U.P. *Int. Jour. crude drug Res.*, 22:48-51.
- Kharkwal G. (2009). Diversity and Distribution of Medicinal Plant Species in the Central Himalaya, India. *Researcher*, 1: 61-73.
- Mishra, N.K., Das R. & Srivastava D. K. (2012). Ethno-medicinal weeds of veterinary importance from Dullapathar frontier region of district Sonbhadra (south east U.P.) *Indian J. Pl. Sci.* 2 (1): 109-111.
- Pimentel, D. and Wilson, C., (1997). Economics and environmental benefits of biodiversity. *BioScience*, 47(11): 747-58.
- Rajkumar, S.D., Srivastava, S.K., Singh, S.K., Gautam, R.P. (2012). Ethnomedicinal uses of Pteridophytes of Eastern Uttar Pradesh India. *Int. Jour. Bio. Techn.*, Special Issue, (0976-4313): 291294.
- Rosangkima Gabriel, Thengtom Rongpi and Surya Bali Prasad (2010). Ethno medicinal value of some anticancer medicinal plants from north-east India: an in vivo screening in murine model. *Science Vision*, 10(4):123-133.
- Samant, S.S, Dhar, U. and Palni, L.M.S. (1998). Medicinal plants of Indian Himalaya: diversity distribution and potential Value. Nainital: Gyanodaya Prakashan.
- Singh, K.K. and Anand Prakash (1994). Indigenous phytotherapy among the Gond tribe of Uttar Pradesh, India, *Ethnobotany* 6(1&2):37-41.
- Singh, A., Singh, P. and Pandey, A.K. (2002). Plant used in primary health practices in Vindhya Region of Eastern Uttar Pradesh, India *International Journal of Herbal Medicine* 2014; 2 (2): 31-37
- Sumeet, G., Sharma, C.M., Rana, C.S., Ghildiyal, S.K. and Suyal, S. (2010). Phytodiversity (Angiosperms and Gymnosperms) in Mandal-Chopta Forest of Garhwal Himalaya, Uttarakhand, India. *Nature and Science*, 8: 1-17.
- Tiwari, A.P., Joshi, B., Ansari, A.A. (2012). Ethnomedicinal uses of some weeds of Uttar Pradesh, India. *Researcher*, 4(7): 67-72.
- Tomar, A. (2009). Folk medicinal uses of plant roots from Meerut district, Uttar Pradesh. *Ind. Jour. Tr. Know*, 8(2): 298-301.

#### **CITATION OF THIS ARTICLE**

Chaurasia, S.\* and Mishra, K. (2022). Phytosociological Study of Kushmi Forest Division of Gorakhpur Uttar Pradesh, *Int. J. Agriworld*, 3 [2]: 20-33.