

Exploration of Medicinal Plants in Shahjahanpur District of Uttar Pradesh: Need for Conservation



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ABSTRACT

Aim: To explore the medicinal plants from Shahjahanpur forest divisions of Uttar Pradesh.

Materials and methods: Exploration of the Shahjahanpur forest division has been carried out during the month of June 2017. Data were collected during the medicoethno-botanical survey from Shahjahanpur forest divisions of Uttar Pradesh.

Results: During exploration, records of commonly occurring medicinal plants and traditional practices with their global positioning system and potential in the field have been recorded. The important medicinal plants like *Aegle marmelos* (L.) Correa, *Celastrus paniculatus* Willd., *Centella asiatica* (L.) Urb., *Desmodium gangeticum* (L.) DC., *Helicteres isora* L., *Holarrhena pubescens* Wall. ex G. Don, *Oroxylum indicum* (L.) Kurz, *Premna mollissima* Roth, *Solanum nigrum* L., *Terminalia tomentosa* Wight and Arn. *Tribulus terrestris* L., etc., were recorded, which can be undertaken for pharmaceutical use through systemic conservation and cultivation. Very little knowledge is available for traditional use of medicinal plants in the area. There is a need of developing awareness among the local people of the areas.

Conclusion: The study area is widely occupied by plants of *Holarrhena pubescens* Wall. ex G. Don and *Celastrus paniculatus* Willd., *Oroxylum indicum* (L.) Kurz, etc., for conservation in the habitat.

Keywords: Conservation, Exploration, *Helicteres isora* L., Medicinal plants, Utilization.

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INTRODUCTION

The district Shahjahanpur stretched between 27°27' N to 28°28' N and 79°19' to 80°23' E in Uttar Pradesh with a geographical area of 4,575 km² (agri.up.nic.in) in the largest state of India is located in the northern part bordering with state of Bihar in the east, Uttaranchal and Delhi in the north, and Madhya Pradesh in the west and south covering an area with varying geographical zones, i.e., Tarai areas of Upper Gangetic plains, dry rocky Vindhyan plateau, and Bundelkhand suspended in the Madhya Pradesh with a forest cover of tropical forests only. It occupies a land area of 2,716,425 km² and comprises 75 districts.

The areas covered under extensive exploration in Uttar Pradesh are Shahjahanpur Forest Division falling into Tarai belt of Upper Gangetic plains, distinguished with the prominent rivers Gomti, Ramganga, and Ganga traversing toward southeast in the state. These forests receive moderate rainfall and maintain a reasonable floral and faunal biodiversity. The study area is surrounded by Kheri, Sitapur, and Hardoi districts in the east, Pilibhit in the north, Bareilly and Badayun in the west, and Farrukhabad in the south. The district is occupied by agriculture land except Khutar range with natural forest located in the northern part adjoining Pilibhit and Kheri districts with Corbet National Park. Tribal people are very meager in the area. Traditional knowledge is only confined to villagers and traditional practitioners are negligible. Forest cover in entire Uttar Pradesh is only 5.8% of the entire area, i.e., 21,833 km² (State Forest Report 2003, published by the Forest Survey of India, Uttar Pradesh).

Authors made an extensive exploration of Shahjahanpur Forest divisions for the first time with a noting on GPS status, which has not yet been recorded in past.¹⁻¹⁵ Plants used by rural communities of Shahjahanpur districts have been described.¹⁶ Disorders related with individual plants are as per published records.¹⁷⁻²⁰

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Conflict of interest: None

Exploration of ethnomedicinal plants in the forest and rural areas of Shahjahanpur Forest division has been conducted during June 2017. The paper represents the exploration of medicinal wealth with an emphasis on pharmaceutically viable medicinal plants with GPS location and some specific plants of new importance used by local rural people in the explored areas. Emphasis on pharmaceutical potential for conservational aspects of traditionally used medicinal plants has been described for the first time in the concerned forest divisions falling under Tarai belt of Uttar Pradesh.

MATERIALS AND METHODS

Extensive exploration has been conducted in different forest areas falling under Shahjahanpur forest divisions of Uttar Pradesh. Records of the collections have been observed with the global positioning system (GPS) at different places with their distribution at different spots. The Herbarium vouchers were made by drying, poisoning, and mounting on Herbarium sheets²¹ and deposited in

the Herbarium of Regional Ayurveda Research Institute (Acronym JHS). Authenticity of Herbarium was made after consulting the Herbarium of the institute, which was confirmed by comparing with Herbarium sheets kept in the Herbarium of Botanical Survey of India, Allahabad. During field observation, suitability of medicinal plants with high demand and commercial values as well as methods for conservation have been studied by bringing the sufficient germ plasm in the Garden of Regional Ayurveda Research Institute, Jhansi. Attempts have also been made to know the potential of highly used medicinal plants and ethnomedicinal uses of medicinal plants in the area and by the use of previously described methods,²² the attempts made for commercialization as well as conservational aspects.

OBSERVATIONS

The important medicinal plants distributed in the study areas of Shahjahanpur forest divisions of Uttar Pradesh have been given in Table 1. Their potential in the field has also been recorded and presented through this communication (Fig. 1).

Exploration

The results of exploration in the study areas have been described in Table 1.

Conservation

Conservation of medicinal plants in Tarai region of Uttar Pradesh to which the study areas belong, needs for enriching the locally available medicinal plants in their vicinity which has the commercial value as it is fact due to shortage of plant for the root, the whole plant of *Pleurolobus gangeticus* (L.) J.St.-Hil. ex H.Ohashi and K.Ohashi, *Grona triflora* (L.) H.Ohashi and K.Ohashi and *Flemingia* sps. are traded in different markets in the name of

Shalparni. Similar is the case for certain other plants also. Besides there is also need of conservation of *Asparagus racemosus* Willd., *Chlorophytum tuberosum* (Roxb.) Baker, *Curculigo orchoides* Gaertn., *Helicteres isora* L., *Oroxylum indicum* (L.) Kurz, *Rauwolfia serpentina* (L.) Benth. ex Kurz, *Santalum album* L., and *Semecarpus anacardium* L.f. through cultivation in the field. Attempts may also be made toward cultivation of *Cinnamomum verum* J. Presl and *Pterocarpus santalinus* L.f.

DISCUSSION

In past plants used by villagers of Shahjahanpur district have been described, whereas the records on global distribution status and quantification of important medicinal plants were unexplored

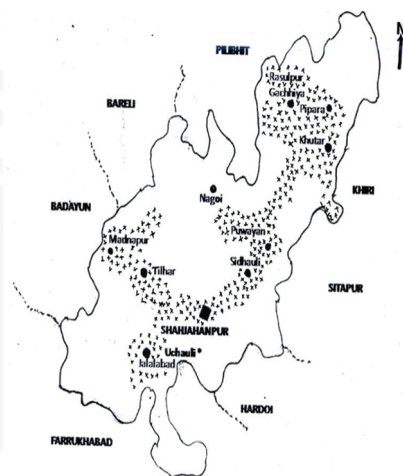


Fig. 1: Map of Shahjahanpur forest division showing areas under study

Table 1: List of important medicinal plants distributed in the study areas

Sl. no.	Plant name	Sanskrit name/ vernacular name	Place of collection/habit	Collection no.	Accession no.	GPS status	
1	<i>Abrus precatorius</i> L.	Gunja/Ratti	Khutar range	Climber	10,057	27,605	N28°11.914 E080°16.613
2	<i>Abutilon indicum</i> (L.) Sweet	Atibala/Khangi	Tilhar range	Shrub	10,019	27,532	N27°55.479 E079°48.711
3	<i>Acacia catechu</i> (L.f.) Willd.	Khadir/Khair, Kattha	Uchauliya	Tree	9,959	27,416	N27°49.306 E080°02.264
4	<i>A. leucophaea</i> Willd.	Shwet Barbura	Uchauliya	Tree	9,950	27,398	N27°49.310 E080°02.649
5	<i>Acacia nilotica</i> subsp. <i>indica</i> (Benth.) Brenan	Babbul/Babul	Tilhar range	Tree	10,042	27,567	N28°04.890 E080°06.967
6	<i>Acalypha indica</i> L.	Haritmanjjari/ Kuppi	Pigara Pigari Shahjahanpur	Herb	9,975	27,446	N27°49.539 E080°02.199
7	<i>Achyranthes aspera</i> L.	Apamarga/ Chirchiri	Uchauliya	Herb	9,938	27,371	N27°49.506 E080°02.206
8	<i>Acmella uliginosa</i> (Sw.) Cass.	Akarkara	Uchauliya	Herb	9,954	27,406	N27°49.504 E080°02.214
9	<i>Adina cordifolia</i> (Roxb.) Brandis	Haridru/Haldu	Garhi beat	Tree	10,070	27,630	N28°20.086 E080°21.484
10	<i>Aegle marmelos</i> (L.) Correa	Bilva/Bael	Tilhar range	Tree	10,044	27,580	N28°08.327 E080°11.369

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Sl. no.	Plant name	Sanskrit name/ vernacular name	Place of collection/habit		Collection no.	Accession no.	GPS status
11	<i>Ailanthus excelsa</i> Roxb.	Aralu	Uchauliya	Tree	9,960	27,418	N27°49.322 E080°02.289
12	<i>Albizia lebbbeck</i> (L.) Benth.	Sirisa/Shiris	Cantt. SJP	Tree	10,000	27,494	N27°51.925 E079°54.390
13	<i>Alstonia scholaris</i> (L.) R. Br.	Saptaparna// Chhitauni	Tilhar range	Tree	10,032	27,556	N27°58.974 E079°40.025
14	<i>Alternanthera sessilis</i> (L.) R. Br. ex.DC.	Matsyakshi	Garhi beat	Herb	10,071	27,632	N28°20.091 E080°21.502
15	<i>A. pungens</i> Kunth		Mandanpura beat	Herb	10,121	27,726	N28°23.744 E080°07.669
16	<i>Amaranthus viridis</i> L.	Tnduliya	Uchauliya	Herb	9,956	27,410	N27°49.504 E080°02.214
17	<i>Ampelocissus latifolia</i> (Roxb.) Planch.		Tilhar range	Climber	10,036	27,564	N29°08.003 E080°10.954
18	<i>Argemone mexicana</i> L.	Swarnakshiri	Tilhar range	Herb	10,039	27,570	N28°08.069 E080°11.137
19	<i>A. ochroleuca</i> Sweet	—	Pigara Pigari	Herb	9,980	27,457	N27°57.216 E079°51.040
20	<i>Arundo donax</i> L.	Nal/Narkat	Khutar range	Shrub	10,051	27,594	N28°08.768 E080°12.928
21	<i>Asparagus racemosus</i> Willd.	Shatavari/Satava	Cantt. SJP	Climber	9,991	27,478	N27°51.925 E079°54.390
22	<i>Azadirachta indica</i> A. Juss.	Nimba/Neem	Kant	Tree	10,009	27,509	N27°49.282 E079°39.570
23	<i>Thespesia lampas</i> (Cav.) Dalzell	Van Karpash	Garhi beat	Shrub	10,093	27,673	N28°11.565 E080°16.685
24	<i>Baliospermum montanum</i> (Willd.) Mull. Arg.	Danti	Mandanpura beat	Shrub	10,113	27,712	N28°23.535 E080°07.864
25	<i>Barringtonia acutangula</i> (L.) Gaertn.	Nichul	Cantt. SJP	Tree	10,004	27,499	N27°51.923 E079°54.388
26	<i>Bauhinia malabarica</i> Roxb.	—	Garhi beat	Tree	10,081	27,654	N28°20.262 E080°21.680
27	<i>Bauhinia racemosa</i> Lam.	—	Tilhar range	Tree	10,030	27,553	N27°59.194 E079°40.014
28	<i>Bauhinia purpurea</i> L.	Kovidar	Tilhar range	Tree	10,031	27,555	N27°58.974 E079°40.025
29	<i>Boerhavia diffusa</i> L.	Punarnava	Cantt. SJP	Herb	9,996	27,486	N27°51.923 E079°54.390
30	<i>Bombax ceiba</i> L.	Shalmali	Cantt. SJP		10,005	27,501	N27°51.927 E079°54.378
31	<i>Bridelia retusa</i> (L.) A. Juss.	Kamboji	Tilhar range	Tree	10,046	27,584	N28°08.011 E080°06.090
32	<i>Buchanania cochinchinensis</i> Lour.) M.R. Almeida	Priyal/Chiraunji	Garhi beat	Tree	10,086	27,661	N28°20.154 E080°21.488
33	<i>Butea monosperma</i> (Lam.) Kuntze	Palash/Dhak	Uchauliya	Tree	9,949	27,396	N27°49.306 E080°02.645
34	<i>Guilandina bonduc</i> L.	Lata Karanja	Kant	Shrub	10,008	27,507	N27°47.923 E079°46.880
35	<i>Calamus rotang</i> L.	Vetra/Bent	Bilinda Pur	Shrub	10,105	27,696	N28°16.187 E080°11.608
36	<i>Calotropis gigantea</i> (L.) W.T. Aiton	Alarka/Madar	Uchauliya	Shrub	9,973	27,442	N27°49.540 E080°02.197

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Sl. no.	Plant name	Sanskrit name/ vernacular name	Place of collection/habit	Collection no.	Accession no.	GPS status	
37	<i>C. procera</i> (Aiton) W.T. Aiton	Arka/Madar	Pigara Pigari	Shrub	9,981	27,459	N27°57.216 E079°51.040
38	<i>Canna indica</i> L.	—	Tilhar range	Herb	10,029	27,551	N27°58.668 E079°43.070
39	<i>Cannabis sativa</i> L.	Vijaya/Bhang	Cantt. SJP	Herb	9,990	27,476	N27°51.915 E079°54.385
40	<i>Capparis sepiaria</i> L.	Griddhanakhi	Cantt. SJP	Shrub	9,997	27,488	N27°51.923 E079°54.390
41	<i>C. zeylanica</i> L.	Vyaghanakhi/ Kareruwa	Uchauliya	Climber	9,952	27,402	N27°49.306 E080°02.760
42	<i>Cardiospermum halicacabum</i> L.	Karnaspota	Tilhar range	Do	10,038	27,568	N28°08.025 E080°10.984
43	<i>Careya arborea</i> Roxb.	Kumbhi	Mandanpura beat	Tree	10,127	27,736	N28°23.521 E080°07.647
44	<i>Carissa carandas</i> L.	Karmarda	Mandanpura beat	Shrub	10,120	27,724	N28°23.768 E080°07.674
45	<i>Carissa spinarum</i> L.	Karmardika	Uchauliya	Shrub	9,974	27,444	N27°49.351 E080°02.520
46	<i>Casearia graveolens</i> Dalzell.	Chilhar	Garhi beat	Shrub	10,095	27,677	N28°23.163 E080°19.568
47	<i>Catunaregam spinosa</i> (Thunberg) Triveng.	Madana	Uchauliya	Tree	9,969	27,434	N27°49.392 E080°02.916
48	<i>Cayratia trifolia</i> (L.) Domin	Atyاملaparni	Madanapur	Climber	10,013	27,522	N27°42.817 E079°39.567
49	<i>Celastrus paniculatus</i> Willd.	Jyotismati	Uchauliya	Shrub	9,962	27,422	N27°49.288 E080°03.000
50	<i>Centella asiatica</i> (L.) Urb.	Mandukparni	Mandanpura beat	Herb	10,122	27,728	N28°23.744 E080°07.669
51	<i>Ceriscoides turgida</i> (Roxb.) Tirveng.	Mahapinditaru	Garhi beat	Shrub	10,092	27,671	N28°23.163 E080°19.568
52	<i>Cheilocostus speciosus</i> (J. Koing.) C. D. Specht.	Kebuk	Garhi beat	Herb	10,089	27,667	N28°22.997 E080°19.352
53	<i>Chlorophytum tuberosum</i> (Roxb.) Baker	Swet Musali	Garhi beat	Herb	10,079	27,648	N28°20.267 E080°21.637
54	<i>Chrozophora rottleri</i> (Gaeseler) Spreng.	—	Uchauliya	Herb	9,963	27,424	N27°49.307 E080°03.822
55	<i>Chrysopogon zizanioides</i> (L.) Roberty	Ushir/Khas	Garhi beat	Herb	10,098	27,683	N28°23.179 E080°19.548
56	<i>Cissampelos glaberrima</i> A.St.-Hil	Patha	Uchauliya	Climber	9,943	27,382	N27°49.440 E080°02.278
57	<i>Cleome viscosa</i> L.	Suvarchala	Tilhar range	Herb	10,021	27,535	N27°55.798 E079°48.340
58	<i>Clerodendrum infortunatum</i> L.	Bhandir	Uchauliya	Shrub	9,934	27,369	N27°49.440 E080°02.278
59	<i>Coccinia grandis</i> (L.) Voigt	Bimbi/Gurdgun	Kant- Jalalabad	Climber	10,007	27,505	N27°49.282 E079°39.567
60	<i>Cocculus hirsutus</i> (L.) W. Theob.	Chilhint	Cantt. SJP	Climber	10,001	27,496	N27°51.925 E079°54.390
61	<i>Cordia dichotoma</i> G. Forst.	Sleshmatak/ Lisora	Uchauliya	Tree	9,970	27,436	N27°49.504 E080°02.214
62	<i>Crateva magna</i> (Lour.) DC.	Varun	Cantt. SJP	Tree	10,002	27,497	N27°51.927 E079°54.388

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Sl. no.	Plant name	Sanskrit name/ vernacular name	Place of collection/habit		Collection no.	Accession no.	GPS status
63	<i>Cryptolepis dubia</i> (Burm. f) M. R. Almeida	Krishna Sariva	Khutar range	Climber	10,059	27,609	N28°11.565 E080°16.685
64	<i>Curculigo orchioides</i> Gaertn.	Talmuli	Garhi beat	Herb	10,064	27,619	N28°20.097 E080°21.466
65	<i>Cuscuta reflexa</i> Roxb.	Akashvalli	Tilhar range	Parasite	10,040	27,572	N298°08.069 E080°11.137
66	<i>Cyanthillium cinereum</i> (L.) H.Rob.	Sahadevi	Uchauliya	Herb	9,944	27,384	N27°49.421 E080°02.304
67	<i>Cynoglossum wallichii</i> G. Don	—	Bilinda Pur	Herb	10,101	27,688	N28°14.558 E080°09.155
68	<i>Dalbergia sissoo</i> Roxb. ex DC.	Shinshap/ Shisham	Garhi beat	Tree	10,074	27,638	N28°20.124 E080°21.535
69	<i>Datura metel</i> L.	Dhatura	Uchauliya	Shrub	9,961	27,420	N27°49.288 E080°02.990
70	<i>Dendrophthoe falcata</i> (L.f.) Ettings	Meshshringa	Uchauliya	Parasite	9,953	27,404	N27°49.392 E080°02.916
71	<i>Desmostachya bipinnata</i> (L.) Stapf.	Kush /Kusha	Uchauliya	Herb	9,945	27,386	N27°49.428 E080°02.325
72	<i>Dillenia pentagyna</i> Roxb.	Agiya	Garhi beat	Tree	10,091	—	N28°23.053 E080°19.364
73	<i>Dioscorea pentaphylla</i> L.	Kantalu	Garhi beat	Climber	10,065	—	N28°20.097 E080°21.466
74	<i>D. pubera</i> Blume	—	Mandanpura beat	Climber	10,126	—	N28°23.521 E080°07.647
75	<i>Diospyros melanoxylon</i> Roxb.	Tindook/Tendu	Garhi beat	Tree	10,099	27,684	N28°23.186 E080°19.459
76	<i>D. montana</i> Roxb.	Vish Tendu	Uchauliya	Tree	9,939	27,373	N27°49.506 E080°02.206
77	<i>Eclipta prostrata</i> (L.) L.	Bhringaraja/ Bhagraiya	Uchauliya	Herb	9,941	27,378	N27°49.420 E080°02.325
78	<i>Euphorbia hirta</i> L.	Brihat-Dugdihika	Pigara Pigari	Herb	9,977	27,450	N27°49.539 E080°02.199
79	<i>Evolvulus nummularius</i> (L.) L.	Vishnukranti	Khutar range	Herb	10,062	27,615	N28°10.794 E080°18.797
80	<i>Ficus benghalensis</i> L.	Vat/Bargad	Khutar range	Tree	10,061	27,613	N28°04.890 E080°06.967
81	<i>F. hispida</i> L. f.	Kasthodumber	Uchauliya	Tree	99,57	27,412	N27°49.504 E080°02.214
82	<i>F. lacor</i> Buch.-Ham.	Plaksh/Pakar	Uchauliya	Tree	9,967	—	N27°49.438 E080°02.956
83	<i>F. palmata</i> Forssk.	—	Pigara Pigari	Shrub	9,976	27,448	N27°49.539 E080°02.199
84	<i>F. racemosa</i> L.	Udambar/Gular	Garhi beat	Shrub	10,085	27,660	N28°20.171 E080°21.264
85	<i>F. religiosa</i> L.	Ashvattha/Pipal	Uchauliya	Tree	9,948	27,294	N27°49.358 E080°02.473
86	<i>Flacourtia indica</i> (Burm. f.) Merr.	Vikankat	Uchauliya	Tree	9,965	27,428	N27°49.392 E080°02.916
87	<i>Flemingia macrophylla</i> (Willd.) Kurze ex Merr.	Bara Salpan	Garhi beat	Herb	10,072	27,634	N28°20.102 E080°21.514
88	<i>Glycosmis pentaphylla</i> (Retz.) DC.	Ashwa shak- hotaka/Vana Nimbu	Garhi beat	Shrub	10,090	27,669	N28°22.997 E080°19.352

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Sl. no.	Plant name	Sanskrit name/ vernacular name	Place of collection/habit		Collection no.	Accession no.	GPS status
89	<i>Gmelina arborea</i> Roxb. ex Sm.	Gambhari	Tilhar range	Tree	10,035	27,562	N29°08.003 E080°10.954
90	<i>Grangea</i> <i>maderaspatana</i> (L.) Poir.	—	Pigara Pigari	Herb	9,982	27,461	N27°57.216 E079°51.040
91	<i>Grewia asiatica</i> L.	Parushak	Garhi beat	small tree	10,073	27,636	N28°20.115 E080°21.530
92	<i>G. helictrifolia</i> Wall. ex G. Don	Kukurbichchha	Garhi beat	Shrub	10,088	276,65	N28°22.970 E080°19.344
93	<i>Helicteres isora</i> L.	Avartini/Marod fali	Tilhar range	Shrub	10,048	27,588	N28°08.768 E080°06.928
94	<i>Helminthostachys</i> <i>zeylanica</i> (L.) Hook.	Kamraja	Garhi beat	Herb/fern	10,066	27,621	N28°20.097 E080°21.466
95	<i>Holarrhena pubescens</i> Wall. ex G. Don	Kutaj	Garhi beat	Tree	10,078	27,646	N28°20.267 E080°21.637
96	<i>Holoptelea integrifolia</i> (Roxb.) Planch.	Chirabilva	Uchauliya	Tree	99,42	27,380	N27°49.410 E080°02.348
97	<i>Ichnocarpus</i> <i>frutescens</i> (L.) W.T. Aiton	Krishna sariva	Cantt. SJP	Herb climber	9,987	27,470	N27°51.915 E079°54.385
98	<i>Jatropha gossypifolia</i> L.	—	Mandanpura beat	Shrub	10,116	27,718	N27°49.431 E079°40.232
99	<i>Justicia adhatoda</i> L.	Vasa/Adusa	Madanapur	Shrub	10,014	27,521	N27°49.431 E079°40.232
100	<i>Lannea coromandelica</i> (Houtt.) Merr.	Gudmanjjari	Bilinda Pur	Shrub	10,107	27,700	N28°15.410 E080°09.769
101	<i>Lygodium flexuosum</i> (L.) Sw.	Kali Jari	Garhi beat	Climber	10,068	27,625	N28°20.085 E080°21.465
102	<i>Madhuca longifolia</i> (J. Koenig. ex L.) J.F. Macbr.	Madhuka/ Mahuwa	Madanapur	Tree	10,010	27,512	N27°53.260 E079°40.551
103	<i>Mallotus philippensis</i> (Lam.) Mull. Arg.	Kampillak/ Rohina	Tilhar range	Tree	10,033	27,558	N29°08.003 E080°10.954
104	<i>Marsilea minuta</i> L.	Sunisanakka	Khutar range	Aquatic herb	10,054	27,599	N28°11.291 E080°15.160
105	<i>Melia azedarach</i> L.	Mahanimb/ Bakain	Khutar range	Tree	10,049	27,590	N28°08.768 E080°06.928
106	<i>Miliusa tomentosa</i> (Roxb.) Finet and Gagnep	Kari	Garhi beat	Shrub	10,069	27,628	N28°20.085 E080°21.486
107	<i>Millettia extensa</i> (Benth.) Benth. ex Baker	Gauj	Bilinda Pur	Scand ant	10,104	27,694	N28°16.160 E080°11.567
108	<i>Mimosa pudica</i> L.	Lajjalu/Chhu- imui	Uchauliya	Herb	9,955	27,408	N27°49.504 E080°02.214
109	<i>Mitragyna parvifolia</i> (Roxb.) Korth.	Dhuli Kadamb	Uchauliya	Tree	9,947	27,390	N27°49.374 E080°02.406
110	<i>Momordica</i> <i>balsamina</i> L.	Sushavi	Cantt. SJP	Climber	9,999	27,492	N27°51.925 E079°54.390
111	<i>Morinda coreia</i> Buch. Ham Sm.	—	Uchauliya	Tree	9,946	27,388	N27°49.390 E080°02.374
112	<i>Morus alba</i> L.	Tud, Shahtut	Tilhar range	Tree	10,045	27,582	N28°08.011 E080°06.090

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Sl. no.	Plant name	Sanskrit name/ vernacular name	Place of collection/habit	Collection no.	Accession no.	GPS status	
113	<i>Murraya koenigii</i> (L.) Spreng.	Kaidarya/Mithi Neem	Cantt. SJP	Shrub	9,985	27,467	N27°51.915 E079°54.385
114	<i>M. paniculata</i> (L.) Jack.	—	Cantt. SJP	Shrub	9,993	—	N27°51.925 E079°54.390
115	<i>Nelsonia canescens</i> (Lam.) Spreng.	—	Uchauliya	Herb	9,940	27,375	N27°49.374 E080°02.406
116	<i>Nelumbo nucifera</i> Gaertn.	Kamal	Tilhar range	Aquatic herb	10,041	27,574	N28°04.890 E080°06.967
117	<i>Neolamarckia cadamba</i> (Roxb.) Bosser	Kadamb	Khutar range	Tree	10,055	27,601	N28°11.902 E080°16.596
118	<i>Nicotiana plumbaginifolia</i> Viv.	—	Tilhar range	Herb	10,028	27,549	N27°58.705 E079°43.084
119	<i>Oplismenus burmanni</i> (Retz.) P. Beauv.	Vans Patri	Cantt. SJP		9,992	27,480	N27°51.925 E079°54.390
120	<i>Opuntia stricta</i> (Haw.) Haw.	Nagphani	Tilhar range	Herb	10,034	27,560	N27°57.969 E079°58.036
121	<i>Oroxylum indicum</i> (L.) Kurz	Shyonak	Tilhar range	Tree	10,047	27,586	N28°08.475 E080°11.555
122	<i>Oxalis corniculata</i> L.	Changeri/ Tinpatiya	Madanapur	Herb	10,012	27,517	N27°53.260 E079°40.551
123	<i>Phoenix acaulis</i> Roxb.	Bhu- Kharjurika	Garhi beat	Herb	10,100	27,686	
124	<i>P. sylvestris</i> (L.) Roxb.	Khajur	Uchauliya	Tree	9,968	27,432	N27°49.438 E080°02.956
125	<i>Phyla nodiflora</i> (L.) Greene	Jalapippali	Pigara Pigari	Herb	9,979	27,454	N27°57.183 E079°51.063
126	<i>Phyllanthus emblica</i> L.	Amalki	Garhi beat	Tree	10,083	27,658	N28°20.191 E080°21.441
127	<i>P. amarus</i> Schumacher and Thonn	Bhumymlaki	Tilhar range	Herb	10,026	27,545	N27°58.705 E079°43.084
128	<i>P. reticulatus</i> Poir.	—	Cantt. SJP	Shrub	9,995	27,484	N27°51.925 E079°54.390
129	<i>P. urinaria</i> L.	Lal- Bhuiavla	Mandanpura beat	Herb	10,114	27,714	N28°23.630 E080°08.002
130	<i>Pistia stratiotes</i> L.	Variparni	Uchauliya	Aquatic herb	9,964	27,426	N27°49.307 E080°03.022
131	<i>Pithecelobium dulce</i> (Roxb.) Benth.	Jangal -Jalebi	Tilhar range	Tree	10,037	27,566	N28°06.482 E080°10.007
132	<i>Desmodium gangeticum</i> (L.) DC.	Shalparni	Shahjahanpur	Herb	9,932	27,358	N27°49.441 E080°02.275
133	<i>Plumbago zeylanica</i> L.	Chitraka	Cantt. SJP	Herb	9,994	27,482	N27°51.925 E079°54.390
134	<i>Polygonum plebeium</i> R. Br.	—	Pigara Pigari	Herb	9,983	27,463	N27°57.216 E079°50.901
135	<i>Poranopsis paniculata</i> (Roxb.) Roberty	—	Mandanpura beat	Herb	10,118	27,722	N28°23.832 E080°08.024
136	<i>Portulaca quadrifida</i> L.	Laghu- Lonika	Tilhar range	Herb	10,027	27,547	N27°58.705 E079°43.084
137	<i>Premna mollissima</i> Roth	Brihit- Agnim-anth	Madanapur	Shrub	10,015	27,524	N27°53.429 E079°40.540
138	<i>Putranjiva roxburghii</i> Wall.	Putrajivak/Pu-tranjiva	Uchauliya	Tree	9,935	27,365	N27°49.506 E080°02.206
139	<i>Rauvolfia serpentina</i> (L.) Benth. ex Kurz	Sarpagandha	Mandanpura beat	Shrub	10,117	27,720	N28°23.764 E080°08.009

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Sl. no.	Plant name	Sanskrit name/ vernacular name	Place of collection/habit		Collection no.	Accession no.	GPS status
140	<i>Ricinus communis</i> L.	Erand/Rend	Tilhar range	Shrub	10,018	27,531	N27°55.479 E079°48.711
141	<i>Ruellia prostrata</i> Poir.	—	Cantt. SJP	Herb	9,998	27,490	N27°51.915 E079°54.385
142	<i>Santalum album</i> L.	Chandan	Uchauliya	Tree	9,971	27,438	N27°49.504 E080°02.214
143	<i>Schleichera oleosa</i> (Lour.) Oken	Koshamra	Garhi beat	Tree	10,094	27,675	N28°23.058 E080°19.374
144	<i>Scoparia dulcis</i> L.	Mithipatti	Cantt. SJP	Herb	9,988	27,472	N27°51.915 E079°54.385
145	<i>Semecarpus anacardium</i> L. f.	Bhallatak/Bhilva	Garhi beat	Tree	10,087	27,663	N28°22.970 E080°19.344
146	<i>Senna alata</i> (L.) Roxb.	Dadmardan	Garhi beat	Shrub	10,063	27,617	N28°17.412 E080°20.779
147	<i>S. occidentalis</i> (L.) Link.	Kasamrda	Cantt. SJP	Herb	99,86	27,468	N27°51.915 E079°54.385
148	<i>S. tora</i> (L.) Roxb.	Chakramard	Khutar range	Herb	10,060	27,611	N28°11.137 E080°17.574
149	<i>Sesbania sesban</i> (L.) Merr.	Jayanti/Dhaincha	Tilhar range, 19.6.17	Tree	10,017	27,529	N27°55.479 E079°48.711
150	<i>Shorea robusta</i> Gaertn.	Shal/Shakhu	Garhi beat	Tree	10,067	27,623	N28°20.097 E080°21.466
151	<i>Sida acuta</i> Burm. f.	Bariyar	Cantt. SJP	Herb	9,989	27,474	N27°51.915 E079°54.385
152	<i>S. cordata</i> (Burm. f.) Borss. Waalk.	Bhumi-Bala	Cantt. SJP	Herb	10,006	27,503	N27°51.927 E079°54.388
153	<i>S. cordifolia</i> L.	Bala/Bariyar	Tilhar range	Shrub	10,025	27,543	N27°57.267 E079°45.151
154	<i>S. rhombifolia</i> L.	Mahabala	Pigara Pigari	Herb	9,978	27,452	N27°57.095 E079°50.962
155	<i>Smilax ovalifolia</i> Roxb. ex D. Don	—	Mandanpura beat	Climber	10,123	27,730	N28°23.742 E080°07.659
156	<i>Solanum incanum</i> L.	Brihati (Lale, 2015)	Uchauliya	Herb	9,951	27,400	N27°49.306 E080°02.760
157	<i>S. nigrum</i> L.	Kakamachii	Uchauliya	Herb	9,933	27,360	N27°49.440 E080°02.278
158	<i>S. viarum</i> Dunal	—	Garhi beat	Herb	10,075	27,640	N28°20.129 E080°21.546
159	<i>S. virginianum</i> L.	Kantakari	Cantt. SJP	Herb	9,984	27,465	N27°57.216 E079°51.040
160	<i>Solena heterophylla</i> Lour.	Antamula	Garhi beat	Climber	10,082	27,656	N28°20.221 E080°21.453
161	<i>Spondias pinnata</i> (L. f.) Kurz	Amrataka	Uchauliya	Tree	9,972	27,440	N27°49.504 E080°02.214
162	<i>Stereospermum chelonoides</i> (L.f.) DC.	Patla	Garhi beat	Tree	10,077	27,644	N28°20.131 E080°21.607
163	<i>Streblus asper</i> Lour.	Shakhotak/ Shahera	Uchauliya	Tree	9,936	27,367	N27°49.506 E080°02.206
164	<i>Syzygium cumini</i> (L.) Skeels	Jambu	Uchauliya	Tree	9,966	27,430	N27°49.504 E080°02.214
165	<i>S. salicifolium</i> J. Graham	Nadi-Jambu	Madanapur	Tree	10,016	27,527	N27°47.923 E079°46.880
166	<i>Tectona grandis</i> L.f.	Shak	Bilinda Pur	Tree	10,106	27,698	N28°16.108 E080°11.431

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Sl. no.	Plant name	Sanskrit name/ vernacular name	Place of collection/habit		Collection no.	Accession no.	GPS status
167	<i>Telosma pallida</i> (Roxb.) Craib.	Jiwanti (Lale, 2015)	Khutar range	Climber	10,058	27,607	N28°11.565 E080°16.685
168	<i>Tephrosia purpurea</i> (L.) Pers.	Sharphunka	Tilhar range	Herb	10,023	27,539	N27°556.482 E079°47.366
169	<i>Terminalia arjuna</i> (Roxb. ex DC.) Wight and Arnold.	Arjun	Mandanpura beat	Tree	10,112	27,710	N28°23.524 E080°07.840
170	<i>T. bellirica</i> Gaertn.) Roxb.	Bibhitaki	Tilhar range	Tree	10,043	27,578	N28°08.011 E080°06.090
171	<i>Terminalia tomentosa</i> Wight and Arn.	Asana	Garhi beat	Tree	10,076	27,617	N28°20.131 E080°21.557
172	<i>Tinospora sinensis</i> (Lour.) Merr.	Amrita/Giloe	Uchauliya	Climber	9,958	27,414	N27°49.240 E080°02.212
173	<i>Trianthema portulacastrum</i> L.	Varshabhu	Tilhar range	Herb	10,022	27,537	N27°55.798 E079°48.340
174	<i>Tribulus terrestris</i> L.	Gokshuru	Khutar range	Herb	10,052	27,596	N28°09.287 E080°12.584
175	<i>Tridax procumbens</i> (L.) L.	Ekapushpi	Khutar range	Herb	10,053	27,598	N28°08.287 E080°12.584
176	<i>Saccharum bengalense</i> Retz.	Shar	Madanapur	Herb	10,011	27,514	N27°53.429 E079°40.540
177	<i>Triumfetta pentandra</i> A. Rich.	Zinzhirita	Tilhar range	Shrub	10,020	27,534	N27°55.798 E079°48.340
178	<i>Urena lobata</i> L.		Uchauliya	Herb	9,937	27,369	N27°49.506 E080°02.206
179	<i>Vallisneria spiralis</i> (L.) Kuntze	Asphota	Mandanpura beat	Shrub	10,110	27,706	N28°23.521 E080°07.647
180	<i>Vitex negundo</i> L.	Nirgundi	Mandanpura beat	Small tree	10,124	27,732	N28°23.736 E080°07.388
181	<i>Wrightia arborea</i> (Dennst.) Mabb.	Diddhi	Bilinda Pur	Tree	10,102	27,690	N28°16.062 E080°09.643
182	<i>W. tinctoria</i> (Roxb.) R. Br.	Shwet Kutaj	Mandanpura beat	Tree	10,111	27,708	N28°23.521 E080°07.647
183	<i>Xanthium strumarium</i> L.	Artgal	Tilhar range	Shrub	10,024	27,540	N27°57.267 E079°45.151
184	<i>Ziziphus jujuba</i> Mill.	Badar/Ber	Mandanpura beat	Tree	10,109	27,702	N28°15.920 E080°09.108

accordingly, through present communication the details covering global distribution and quantification has been recorded. During various explorations in the state of Uttar Pradesh, such types of data have been based on extensive exploration of medicinal plants in the study areas. According to survey of medicinal plants in Shahjahanpur Forest Division the plants of *Acacia catechu* (L.f.) Willd., *Achyranthus aspera* L., *Adina cordifolia* (Roxb.) Brandis, *Aegle marmelos* (L.) Correa, *Alangium salvifolium* (L.f.) Wangerin, *Cardiospermum helicacabum* L., *Carissa carandas* L., *Centella asiatica* (L.) Urb., *Coccinia grandis* (L.) Voigt, *Curcuma longa* L., *Chlorophytum tuberosum* (Roxb.) Baker, *Curculigo orchiooides* Gaertn., *Cuscuta reflexa* Roxb., *Datura stramonium* L., *Eclipta prostrata* (L.) L., *Helicteres isora* L., *Holarhena pubescens* Wall. ex G. Don, *Mallotus philippensis* (Lam.) Mull. Arg., *Oroxylum indicum* (L.) Kurz, *Phyllanthus amarus* Schumacher and Thonn, *Pleurolobus gangeticus* (L.) J.St.-Hil. ex H.Ohashi and K.Ohashi, *Plumbago zeylanica* L., *Putranjiva roxberghii* Wall., *Sida*

acuta Burm. f., *S. cordata* Bur. f., *S. cordifolia* L., *S. rhombifolia* L., *Smilax glabra* Roxb., *Solanum nigrum* L., *S. virginianum* L., *Wrightia tinctoria* (Roxb.) R. Br., etc., and the crude drugs are traded in different crude drug markets.

Unlike experimental experience in the states of northeast India where people are vigorously involved in cultivation and commercialization of medicinal plants suitable for cultivation in the areas and developing herbal nurseries in different places, Chhattisgarh and Uttarakhand have adapted conservation aspects for selected medicinal plants in different suitable localities due to the occurrence of wide forest areas.

Cultivation of medicinal plants is the alternate means for conservation through mixed cropping with agricultural crops, which is not in practice as introduction of timber plants like *Shorea robusta* Gaertn., *Tectona grandis* L.f. and *Terminalia elliptica* Willd. Most of the conservation areas are confined to the Shal forests

and roadsides only where ground flora is occupied by herbal plants of *Curculigo orchoides* Gaertn., and *Helminthostachys zeylanica* (L.) Hook. and shrubs of *Helicteres isora* L. There is need of motivation of farmers toward cultivation practice of medicinal plants in the waste land and agriculture farms only. Cultivation of *Andrographis paniculata* (Burm. f.) Nees, *Bacopa monnieri* (L.) Wettst., *Celastrus paniculatus* Willd., and *Oroxylum indicum* (L.) Kurz can be made in the wasteland for commercial use of whole plant, root and bark which are being collected in an unplanned and nonscientific manner. The studied areas are mostly the forest hilly lands with less agriculture occupied by the local inhabitants and tribal migrants. Hence, conservation of medicinal plants in these areas is recommended through *in situ* conservation of highly viable medicinal plants and side by side cultivation of other medicinal plants as the options for developing sustainability of the medicinal plants in these areas.

However, 184 species of medicinal plants have been collected and identified from different GPS locations.

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हिंदी सारांश

उत्तर प्रदेश के शाहजहांपुर जिले के औषधीय पादपों का अन्वेषण: संरक्षण की आवश्यकता

उद्देश्य: उत्तर प्रदेश के शाहजहांपुर वन प्रभाग के औषधीय पादपों के अन्वेषण से है।

सामग्री और विधियां: जून 2017 के माह के दौरान शाहजहांपुर वन प्रभाग का अन्वेषण किया गया। चिकित्सा-प्रजाति वानस्पतिक सर्वेक्षण के दौरान उत्तर प्रदेश के शाहजहांपुर वन प्रभाग से आकड़ें एकत्रित किए गए।

परिणाम: अन्वेषण के दौरान, आमतौर पर होने वाले औषधीय पादपों और शास्त्रीय कार्यों के साथ-साथ वैश्विक स्थिति निर्धारण प्रणाली और क्षेत्र में इसकी क्षमता को रिकॉर्ड किया गया। महत्वपूर्ण औषधीय पादप यथा *एगले मर्मेलोज* (एल.), कोरिया, *सेलेस्ट्रस पेनिकुलाटस वाइल्ड.*, *सेंटेला एशिएटिका* (एल.), उर्ब, *डेस्मोडियम जंजेटिकम* (एल.), डीसी, *हेलिक्टेरस इसोरा* एल., *होलारेना पबसीस* वाल्ल. एक्स जी. डॉन, *ओरोजाइलम इंडिकम* (एल.), कुर्ज़, *प्रेमना मोलिससिमा* रॉथ., *सोलानम निग्रम* एल., *टेर्मिनेलिया टोमेंटोसा* वाइट और *अर्न ट्रिबुलस टेर्रेस्ट्रिस* एल. आदि को रिकॉर्ड किया गया जिनका व्यवस्थित संरक्षण और खेती के माध्यम से फार्मास्युटिकल में उपयोग किया जा सकता है। इस क्षेत्र में औषधीय पादपों के शास्त्रीय प्रयोग की बहुत ही कम जानकारी उपलब्ध है। क्षेत्र के स्थानीय लोगों के बीच जागरूकता विकसित करने की आवश्यकता है।

निष्कर्ष: आवास स्थान में संरक्षण हेतु *होलारेना पबसीस* वाल्ल. एक्स जी. डॉन और *सेलेस्ट्रस पेनिकुलाटस वाइल्ड.*, *ओरोजाइलम इंडिकम* (एल.), कुर्ज़ आदि पादपों से अध्ययन क्षेत्र भरा हुआ है।

मुख्य शब्द: संरक्षण, अन्वेषण, *हेलिक्टेरस इसोरा* एल., औषधीय पादप, उपयोगिता।

