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Sacred Groves and their Phyto Resources in the Blocks of Hirbandh, Taldangra, Khatra and Indpur, Bankura District, West Bengal

Bulganin Mitra[1], Aritri Chatterjee[2], Narayan Chandra Saha[3], Argha Sarkar[4]

[1]Emeritus Professor, Ramakrishna Mission Vivekananda Centenary College, Rahara
[2]Zoology Department, Vidyasagar University
[3]Visiting Faculty, Natural Resource Management, CASFoS, Burnihat and UFTA, Haldwani
[4]Assistant Professor, Department of Botany, Bangabasi College, Kolkata
Corresponding author : bulganinmitra@gmail.com

Abstract

Sacred groves (SGs) are small patches of native vegetation traditionally been protected on the grounds of religious faith. Moreover, these 'botanical islands' preserve rich floral diversity which includes many rare, endemic and important species of flora. The present survey was conducted in 66 sacred groves of Hirbandh (24), Taldangra (25), Khatra (14) and Indpur (3) in Bankura district. A taxonomic analysis of the Phyto resources from these sacred groves revealed 75 species belonging to 66 genera under 36 families. Hirbandh shows the maximum plant diversity with 56 species, followed by Taldangra (36), Khatra (32) and Indpur (13). Among these plants, 53.94% plant species are having Non-Timber Product (NTP) value, 52.63% are important to have medicinal value, 44.74% plants can be used as fuel wood. Moreover, plants produce edible products (34.22%) followed by plants with ritual & cultural value (21.05%) and plants with timber value (5.26%). Among the 75 plant species reported from these four blocks, only 2% species are very commonly (VC) distributed, whereas 38% rarely (R) available in these sacred groves. Such sacred grove is a tool to restore and save the remnants of these age old patches for present and future generations.

Keywords: Sacred groves, Phyto resources, Bankura, West Bengal

Introduction

Groves often act as a storehouse of medicinal and commercially important plants which provide medicines, timber, fodder, fuelwood, food items or oils. SGs also harbour plants that are wild relatives of many crop species hence are largely used for improving the cultivable varieties (Maiti and Mitra, 2022).

In recent times, several publications on sacred groves and its related topics have been published from the district of Bankura. The major contributors are, Mondal *et al.* (2015, 2020), Dutta and Mondal (2018), Sarkar and Modak (2019 & 2022) and Deb (2022). Their study mainly focused on socio-economical culture, bio-cultural interactions, rituals and festivals, traditional practices of the tribes, general awareness and perception of sacred groves and its role in biodiversity conservation etc. In addition to, inventory of the sacred groves and their biological resources of 154 sacred groves under 9 blocks in Bankura district have been documented by Basu (2009), Mitra (2014) Mitra *et al.*, (2015), Mitra *et al.* (2017) and Mitra *et al.* (2018). Despite of the fact, that SGs are the only lingering samples of natural vegetation in the man-modified landscapes in Bankura, they were not very well documented or explored.

Under these circumstances, a survey was conducted to identify and documentation of sacred groves and their phyto resources from the unexplored blocks like, Hirbandh, Taldangra, Khatra and Indpur in Bankura district. The present communication reports floral composition of 66 sacred groves for the first time from the Hirbandh, Taldangra, Khatra and Indpur blocks of Bankura district along with their economic importance. (Fig. 5)

Materials & Methods

Study area

Chota Nagpur plateau of West Bengal comprises of three districts which are mostly semi-arid and contain uneven landscapes, hilly regions, with dense forests (Sarkar and Modak, 2022). The district of Bankura in the state of West Bengal, India (Fig. 1), is a part of the lateritic extension of the Chota Nagpur Plateau (Deb, 2020). It lies in western part of West Bengal and is one of the prominent semiarid, tribal inhabitant districts. It supports dry deciduous forest vegetation and is situated between 22° 38’ N and 23° 38’ N and between 86° 36’ and 87° 46’ E. The district is having 22 community developmental blocks and covers a total area of 6,882 km^2 approximately. The district is bounded by Burdwan district on the north, Burdwan and Hooghly districts on the east, West Medinipur district on the south while district Purulia lies to the west of West Bengal.

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Methodology

Present study was conducted during the year 2010-2012. A random survey was made in 66 SGs of Hirbandh (24), Taldangra (25) Khatra (14) and Indpur blocks (3) (Table.1). Due to difficulties in the identification of herbs, shrubs and creepers, only tree species are documented here. Plants were identified in field with the help of the local tribal and forest people and the book on flora of Bankura by Sanyal (1994) was also referred. Classification is followed after Angiosperm Phylogeny Group (2016). Information on the area of SGs were collected from the indigenous people (as local measurement unit) which was afterwards converted in sq.km. (approx.).

Results

Current communications reports 75 economically important plant species from 66 SGs of Bankura district (Four blocks) are grouped into 66 genera and 36 families (Table.1). The species like, *Phoenix sylvestris* (L.) *Roxb* (Khejur) and *Shorea robusta* Gaertn. (Sal) are the very common plant species of these 66 sacred groves. Details about each block are provided in Table-1.

Hirbandh block

Hirbandh is a community developmental block under Khatra subdivision with an area of 190.97 km^2. The areas of the SGs here range from 201 m^2 to 2680 m^2 (Table.1). Domohani and Itamara are the largest SGs with 2680 m^2. A total of 56 plant species are reported from 24 sacred groves of this block (Photo-H1-H24). The highest number of plant species (19) are reported from Barkania-1, while Masanjhar-1 holds the lowest number of plant species (1) (Fig.1).

Taldangra Block

Taldangra is a community development block has consisting of an area coverage of 349.74 km^2 mostly populated with Santali, Kurmi with other tribal communities. The areas of the sacred groves here range from 134m^2 to 6700m^2 (Table.1). Among the four blocks, the highest number of SGs (Photo-T1-T25) are reported from Taldangra block (25). But plant diversity is less than Hirbandh, only 36 plant species are reported from this block. The SG named Buro babar than of Tuldera is the largest in area (6700 m^2) and holding 19 plant species. The smallest SG is Salui than of Laltagora (134 m^2) with only single plant species (Fig. 2).

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Khatra Block

This community developmental block has an area of 231.82 km^2. A total of 32 plant species are reported from 14 sacred groves of this block (Photo-K1-K14). They are locally known as "Jaher Than", "Gram Than" and "Salui Than". The areas of the SGs here range from 268 m^2 to 2010 m^2 (Table.1). Nadupara-1 is the largest SG in this block with an area of 2010 m^2 and 13 plants species and Nadupara-2 hold only 1 plant species (Fig. 3).

Indpur Block

Indpur community developmental block has an area of 302.60 km^2. Only three SGs are studied, named, Sonabera, Bhaluka (1) and Bhaluka (2) (Photo-I1-I3). Only 13 species of plants are reported from this block (Table.1). The SG named Bhaluka (2) is the largest in area (1005 m^2) and holds 8 plant species. The smallest SG is Sonabera with 469 m^2 and holds 6 plant species (Fig. 4).

Among the 36 families, the family Fabaceae holds the highest number of plant species (11). According to the availability, plant species are categorised as Rare (only single plant species), less common or LC (2-4 plant species), common or C (5-20) and very common or VC (21 and above). Study revealed 38% plants are rare (R), followed by LC (32%), C (28%) and VC (2%) in these Sacred groves of Bankura district. (Table.2).

The plant species can be categorized under various groups, like Fuel wood, non-timber products, medicinal, timber producing, edible fruits, ritual & cultural as per their utilization pattern. One single plant species may have one or more economic value. *Ficus benghalensis* or 'Bot' or *Ficus religiosa* L. "Aswatha" are the important shade trees and used also in ritual & cultural purposes. *Phoenix sylvestris* or 'Taal' produces edible fruits, the juice from its sap is also consumed and its dried trunk is used for fuel wood. *Madhuca indica* or 'Mahua' is a key species because it finds its usage in everyday life of the local inhabitants owing to medicinal properties, fuel wood and non-timber producing value (Table 2).

Present communication reports 52.63% species are having medicinal value, 53.94% plant species under the non-timber producing category, 44.74% plants can be used as fuel wood. Moreover, plants produce edible products (34.22%) followed by plants with ritual & cultural value (21.05%) and plants with timber value (5.26%) are also present in these sacred groves (Table 2).

Discussion

Day by day, sacred groves are losing their prominence due to modernization of education, Sanskritization, decrease in the religious faiths, erosion of traditional knowledge and social values. Besides, westernized urban culture have led to cultural homogenization that contributes to the disappearance of indigenous societies and their associated groves (Maiti and Mitra, 2022). Moreover, Colonial rule and the spread of Christianity by missionaries especially among the tribal societies, is responsible for vanishing of most sacred groves (IUCN, 2002).

Therefore, evaluation of diversity and preparation of the sacred grove inventories are considered a needful task in the present time. Thus, this survey was done with the objective of exploring more and more sacred groves along with their geographical position, name of the deity and composition of the trees. This communication is not focusing on conservational aspect, rather this communication has got importance towards the conservation and planning of the sacred groves in Bankura district of West Bengal in near future.

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Table.1. Sacred Groves of Hirbandh, Taldangra, Khatra & Indpur blocks

No	Name of the Sacred Grove	Deity/ Than	Geographical Position	Area (m^2) (app.)	Reported Plant species	Photo No.
BLOCK HIRBANDH						
1	Rangametia	Jaher Than	N 23º04′571" E 86º87′161"	2010	Asan, Bahara, Chakolta, Jam, Mahua, Piyasal, Palas, Seora, Sal	H1
2	Itamara	Jaher Than	N 23º06′822" E 86º85′736"	2680	Amlaki, Arjun, Challa, Gamar, Kurchi, Kanthal, Mahua, Sal, Segun	H2
3	Masanjhar-1	Jaher Than	N 23º05′072" E 86º85′668"	670	Sal	H3
4	Masanjhar-2	Gram Than	N 23º05′001" E86º85′692"	2010	Akra, Karanj, Neem, Palas	H4
5	Jhatipukuria-1	Jaher Than	N 23º05′326" E 86º84′186"	670	Akra, Karanj, Neem, Palas	H5
6	Jhatipukuria-2	Jaher Than	N 23º05′470" E 86º83′423"	670	Aswatha, Challa, Gamar, Khejur, Palas, Seora	H6
7	Mirgi	Salui Than	N 23º05′097" E 86º 81′312"	670	Arjun, Babla, Doka, Jam, Khejur, Seora	H7
8	Barkania Upper	Salui Than	N 23º05′107" E 86º81′312"	2010	Akra, Chakolta, Khejur, Kul, Kasoi, Neem, Palas, Sal, Seora, Simul	H8
9	Nama Barkania	Thakur Than	N 23º05′107" E 86º81′312"	1340	Aswatha, Challa, Gamar, Khejur, Palsh, Seora,	H9

10	Barkania-1	Jaher Than	N 23º05′107" E 86º81′312"	2010	Arjun, Akra, Am, Challa, Gamar, Haritaki, Kul, Kagaji, Kasoi, Kala, Mahua, Neem, Palas, Piyasal, Siris, Simul, Segun, Sal, Tetul	H10
11	Kajal doba	Salui Than	N 23º05′107" E 86º81′312"	670	Akra, Babla, Bans, Challa, Eupatorium, Khejur, Mother, Putus, Sal, Tulsi, Tal	H11
12	Bandh Gora	Salui Than	N 23º03′984" E86º80′746"	201	Akra, Babla, Bans, Challa, Eupatorium, Khejur, Mother, Putus, Sal, Tal, Tulsi	H12
13	Chtrighutu	Salui Than	N 23º03′628" E 86º81′244"	2010	Akra, Bot, Challa, Falsa, Mahua, Palas, Sal	H13
14	Bauridiha-1	Salui Than	N 23º03′266" E 86º81′267"	670	Babla, Chatim, Dumur, Lohajangi, Palas, Sal, Seora, Simul, Tal	H14
15	Bauridiha-2	Salui Than	N 23º02′967" E 86º81′196"	270	Ata, Babla, Khejur, Kadam, Neem	H15
16	Dakshin Bandh	Salui Than	N 23º03′257" E 86º79′966"	335	Ata, Babla, Khejur, Kadam, Neem	H16
17	Lal Laler Dihi	Salui Than	N 23º02′778" E 86º84′802"	201	Aswatha, Bans, Kul, Neem, Sisu	H17

18	Jamdohara	Salui Than	N 23º04′565" E 86º81′780"	1005	Babla, Haritaki, Khejur, Sal	H18
19	Domohani	Jaher Than	N 23º01′854" E 86º80′326"	2680	Arjun, Akra, Bot, Kend, Mother, Neem, Parasi, Palas, Sodhal	H19
20	Deulagara	Salui Than	N 23º01′312" E 86º79′739"	670	Aswatha, Bans, Kul, Nim, Sisu,	H20
21	Laxmangarh	Jaher Than	N 23º01′322" E 86º78′930"	470	Akra, Challa, Kend, Khejur, Mahua, Palas, Sal, Seora,	H21
22	Jadurbankanta (1)	Jaher Than	N23º02′366" E 86º54′176"	201	Akashmani, Eucalyptus, Kusum, Palas, Sal	H22
23	Jadurbankanta (2)	Jaher Than	N23º02′392" E 86º54′451"	670	Am, Arjun, Bans, Bel, Fani manosa, Jam, Kanchan, dumur, Kend, Neem, Putus, Sajne, Tal	H23
24	Jadurbankanta (3), Tantipara	Jaher Than	N23º02′520″ E086º54′491″	1005	Akra, Arjun, Bot, Kend, Mother, Neem, Parasi, Palas, Sodhal	H24
BLOCK TALDANGRA						
1	Kurkutia (1),	Gosai Than	N22º59′735" E 87º10′79"	670	Aswatha, Bans, Challa, Jaba, Khejur, Segun, Seora	T1
2	Kurkutia (2),	Bairav Than	N22º59′768" E 87º10′775"	335	Aswatha, Challa, Kathgolap, Khejur, Neem	T2

3	Kurkutia (3)	Jaher Than	N22º59′768" E 87º10′775"	402	Aswatha, Khejur, Neem, Seora	T3
4	Joypur,	Bogasini Than	N22º58′574" E 87º10′422"	804	Akra, Bot, Challa, Dumur, Kuchila, Kanthal, Neem, Siris, Seora	T4
5	Sabrakon,	Bhairav Than	N22º57′186 E 87º14′891"	737	Challa, Karabi, Khejur, Mahua, Neem, Siris	T5
6	Tantir bandh	Jaher Than	N23º01′143" E 87º13′402"	335	Akashmani, Bel, Eucalyptus	T6
7	Tuldera	Buro babar than	N23º04′694" E87º 11′661"	6700	Akashmani, Bahara, Bel, Bans, Challa, Fanimanosa, Haritaki, Kurchi, Kanthal, Krishnachura, Khejur, Mahua, Neem, Putas, Sal, Sidha, Segun, Siris, Tal	T7
8	Geradaha	Salui Than	N23º03′786" E87º 14′304"	536	Bot, Bans, Chandan, Chakolta Khejur, Kend, Kurchi, Sal, Sidha, Tal	T8
9	Asanmani village	Salui Than	N23º06′596" E87º 08′401"	335	Sal	T9
10	Fakirdanga village	Salui Than	N23º03′599" E87º 14′411"	201	Sal	T10

11	Tangra village	Salui Than	N23º02′506" E87º 14′787"	335	Akashmani, Bhalai, Chakolta, Karanj, Mahua, Sal	T11
12	Adgargora village	Jaher Than	N23º09′421" E87º 10′307"	270	Mahua, Neem, Sal, Sidha	T12
13	Sarghati village	Salui Than	N23º01′444" E87º 11′205"	405	Bhalai, Mahua, Sal, Sidha	T13
14	Kasibani village	Jaher Than	N23º01′444" E87º 11′205"	670	Challa, Chakolta, Kuchila, Kend, Sal	T14
15	Laltagora	Salui Than	N23º03′952" E87º 12′695"	134	Sal	T15
16	Krishnardanga	Jaher Than	N23º03′952" E87º 12′695"	335	Bahara, Haritaki, Khejur, Mahua, Sal	T16
17	Majherdanga	Jaher Than	N23º06′749" E87º05′106"	335	Akashmani, Bahara, Sal, Khejur	T17
18	Jaldubi	Jaher Than	N23º06′187" E87º08′352"	335	Bans, Bahara, Kurchi, Khejur, Sal, Siris, Sodhal	T18
19	Telani Bandh	Jaher Than	N23º06′487" E87º08′242"	270	Bhalai, Sal	T19
20	Dalangora	Jaher Than	N23º06′484" E87º08′261"	134	Sal	T20
21	Saltora	Bhairav Than	N22º94′678" E87º08′261"	201	Bot, Khejur, Karabi, Mahua	T21
22	Metala village	Jaher Than	N22º95′153" E87º23′302"	670	Akashmani, Botch, Eucalyptus, Sal	T22

23	Ghola	Jaher Than	N22º94′978" E087º27′222"	201	Bot, Bahera, Jam, Sal, Sidha	T23
24	Lalbandh	Jaher Than	N22º94′593" E87º29′338"	1005	Arjun, Aswatha, Bot, Bahera, Hartaki, Kusum, Kend, Neem, Seora	T24
25	Shaldo	Manosa Than	N22º94′396" E87º29′910"	134	Bot, Bans, Chakolta, Coconut, Khejur, Tagar	T25
BLOCK KHATRA						
1	Rajadhali-1	Jaher Than	N 23º00′625" E 86º78′394"	335	Bhuru, Lohajangi, Mahua, Sal	K1
2	Rajadhali-2	Jaher Than	N 23º00′897" E 86.77956	469	Amra, Bet, Kul, Palas, Putus, Seora	K2
3	Nadupara-1	Gram Than	N 22º99′264" E 86º79′169"	2010	Akra, Bans, Bahera, Bel, Chakolta, Doka, Kanchan, Kul, Kelikadam, Kurchi, Seora, Simul, Tetul	K3
4	Nadupara-2	Jaher Than	N 22º99′277" E 86º79′182"	335	Sal	K4
5	Ekaduar	Jaher Than	N 22º98′267" E 86º79′063"	268	Babla, Neem, Sal	K5
6	Dahagara-2	Jaher Than	N 22º97′658" E86º78′653"	469	Aswatha, Kend, Khejur, Neem, Palas, Sal, Tal	K6
7	Saloni	Salui Than	N 22º99′628″ E 86º79′606″	670	Palas, Sal, Tal	K7

8	Kadambera	Jaher Than	N 22º99′413" E 86º80′524"	335	Akra, Kelikadam, Sal	K8
9	Jasora (1)	Jaher Than	N23º02′453" E 86º54′844"	268	Akashmani, Kali kuchla, Khejur, Kend, Siris, Seora	K9
10	Jasora (2)	Dakai sini	N23º02′525" E 86º54′877"	670	Fanimanosa, Kasmola, Kali kuchla, Pakur, Palas, Radhachura, Siris, Seora, Tetul,	K10
11	Dahala (1),	Sal sini	N22º56′840" E 86º56′244"	469	Bot, Kend, Khejur, Putas	K11
12	Dahala (2),	khawasini	N22º56′819" E 86º56′309"	536	Akra, Batabi lebu, Bot, Challa, Doka, Fani manasa, Jam, Kul, Kanthal, Neem, Segun	K12
13	Bahadurpur (1)	Rankini Than	N22º56′654" E 86º56′503"	401	Akasmani, Doka, Haritaki, Khejur, Neem, Sal	K13
14	Bahadurpur (2)	Gram Than	N22º56′643" E 86º56′347"	1005	Akashmani, Bot, Challa, Khejur, Seora, Tal	K14
BLOCK INDPUR						
1	Sonabera	Gram Than	N23º12′145" E 87º00′619"	469	Chakolta, Challa, Kayet, Khejur, Sal, Siris	I1
2	Bhaluka (1)	Jaher Than	N23º09′138″ E 86º56′767"	536	Aswatha, Bot, Bel, Babla, Khejur, Palas, Seora, Siris, Tal	I2
3	Bagaila, Bhaluka (2)	Jaher Than	N23º09′140" E86º56′058"	1005	Bot, Bel, Eucalyptus, Jam, Kul, Khejur, Neem, Seora	I3

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Table 2. Availability of the plant species Family wise in different scared groves and their economic value

No	Family	Botanical name	Local name	Value	Availability
1	Anacardiaceae	*Mangifera indica* L.	Am	FW, NTP EF	LC
2		*Spondias pinnata* Linn. F. Kurz	Amra	FW, M, NTP, R & C, EF	R
3		*Buchanania cochinchinensis* (Lour.) M.R. Almeida	Piyal/ Charoli	M, EF	R
4	Annonaceae	*Annona squamosa* L.	Ata	NTP, EF	LC
5		*Alstonia scholaris* (L.) R. Br.	Chatim	T	R
6		*Nerium oleander* L	Karabi	M, NTP	LC
7		*Plumeria obtusa* L.	Kath golap	NTP	R
8		*Holarrhen aantidysenterica* (Roth) Wall. ex A.DC.	Kurchi	M	R
9		*Tabernaemontana coronaria* (Jacq.) Willd	Tagar	NTP, R & C	R
10	Arecaceae	*Cocos nucifera* L	Coconut	M, NTP, EF	R
11		*Phoenix sylvestris* (L.) Roxb	Khejur	NTP, EF	VC
12		*Borassus flabellifer* Linn	Taal	NTP, EF	C
13	Asteraceae	*Eupatorium perfoliatum* L.	Eupatorium	M	LC
14	Bombacaceae	*Bombax ceiba* L.	Simul	NTP, M	LC

15	Cactaceae	*Opuntia dillenii* (Ker Gawl.) Haw.	Fani manasa	M	LC
16	Caesalpiniaceae	*Bauhinia variegata* L.	Kanchan	NTP	R
17	Combretaceae	*Terminalia arjuna* (Roxb. ex DC.) Wight & Arn	Arjun	FW, NTP, R & C	LC
18		*Terminalia tomentosa* Wight & Arn.	Asan/Asna	FW	R
19		*Terminalia bellirica* (Gaertn.) Roxb.	Bahera/ Boyra	FW, M, EF,	LC
20		*Terminalia chebula* Retz.	Hartuki	NTP, M	LC
21	Ebenaceae	*Diospyros melanoxylon* Roxb.	Kend	FW, NTP, EF	C
22	Fabaceae	*Acacia nilotica* (L.) Delile	Babla	FW, NTP	C
23		*Isoberlinia doka* Craib & Stapf	Doka	T, M	LC
24		*Caesalpinia pulcherrima* (L.) Sw.	Krishnachura	NTP	R
25		*Erythrina variegata* L.	Mandar/Mother	M, NTP	LC
26		*Butea monosperma* (Lam.) Taub.	Palash	FW, M, NTP, R & C	C
27		*Pterocarpus marsupium* Roxb.	Piyasal	FW	LC
28		*Peltophorum pterocarpum* (DC.) K. Heyne	Radhachura	NTP	R
29		*Albizia lebbeck* (L.) Benth.	Sirish	FW, M	C

30		*Dalbergia sissoo* Roxb	Sisu	FW	LC
31		*Cassia fistula* Linn	Sodhal/ Sonali	M	R
32		*Tamarindus indica* L.	Tetul	FW, NTP, R & C, EF	LC
33	Dipterocarpaceae	*Shorea robusta* Gaertn.	Sal	FW, M, NTP, R & C, T	VC
34	Lamiaceae	*Gmelina arborea* Roxb.	Gamar	FW, M	LC
35		*Tectona grandis* L.f.	Segun	T	C
36		*Ocimum canum* Sims	Tulshi	M, NTP, R & C	LC
37	Lecythidaceae	*Couroupita guianensis* Aubl.	Chakolta	FW, M, NTP	C
38	Loganiaceae	*Strychnosnux-vomica* L.	Kuchila	M	LC
39	Lythraceae	*Lagerstroemia parviflora* Roxb	Sidha	FW	C
40	Malvaceae	*Grewia asiatica* L.	Falsa	NTP, EF	R
41		*Hibiscus rosa sinensis* L.	Jaba	M, R & C	R
42	Meliaceae	*Azadirachta indica A. juss*.	Neem	FW, M, NTP, R & C	C
43	Mimosaceae	*Acacia auriculiformis* Benth.	Akashmoni	FW, M	C
44	Moraceae	*Ficus religiosa* L.	Aswatha	FW, R &C	C
45		*Ficus hispida* Linnaeus	Dumur	R&C, M, EF	R
46		*Ficus benghalensis* L.	Bot	FW, R & C	C

47		*Ficus virens* Aiton	Pakur	FW, R & C	R
48		*Artocarpus heterophyllus* Lam.	Kanthal	FW, NTP, EF	R
49	Moringaceae	*Moringa oleifera* Lam.	Sajne	M, NTP, EF	R
50	Musaceae	*Musa paradisiaca* L.	Kala	M, NTP, EF	R
51		*Ensete superbum* (Roxb.)	Bhalai/ Valai	NTP	R
52	Myrtaceae	*Eucalyptus tereticornis* Sm.	Eucalyptus	FW, M, NTP	LC
53		*Syzygium cumini* (L.) Skeels	Jam	FW, M, NTP, EF	C
54	Papillionaceae	*Millettia pinnata* (L.) Panigrahi	Karanj	M	LC
55	Phyllanthaceae	*Phyllanthus emblica* L.	Amlaki	FW, NTP, EF	R
56		*Bridelia retusa* (Linn.) A. Juss.	Kasoi/Kosoi	EF	R
57		*Cleistanthus collinus* (Roxb.) Benth.	Parashi	M	LC
58	Poaceae	*Bambusa arundinaceae* (Retz.) Willd.	Bans	M, NTP	C
59	Rubiaceae	*Gardenia resinifera* Roth	Bhuru	M	R
60		*Neolamarckia cadamba* (Roxb.) Bosser	Kadam	FW, NTP	LC
61		*Mitragyna parvifolia* (Roxb.) Korth	Keli Kadam/ Chili kadam	M, NTP	LC
62		*Ixora arborea* Roxb. ex Smith	Lohajangi	FW, M	LC

63	Rutaceae	*Citrus maxima* (Burm.) Merr.	Batabilebu	M, EF	R
64		*Aegle marmelos* (L.) Corrêa	Bel	FW, M, NTP, R & C, EF	C
65		*Citrus auantiifolia* (Christm.)	Kagaji	EF, M	R
66		*Limonia acidissima* Linn.	Kayet	NTP, EF	R
67		*Glycomis pentaphylla* Auct. Pl	Seora	FW, M, R&C	C
68	Rhamnaceae	*Ziziphus mauritiana* Lam.	Kul	M, NTP, EF	C
69	Sapindaceae	*Schleichera oleosa* (Lour.) Merr.	Kusum	M, EF	LC
70	Sapotaceae	*Madhuca indica*J.F.Gmel.	Mahua	FW, M, NTP, EF	C
71	Salvadoraceae	*Salvadora persica* L.	Akra/ Akro	NTP, R&C	C
72	Santalaceae	*Santalum album* L.	Chandan	M, T	R
73	Salicaceae	*Flacourtia indica* (Burm.f.) Merr.	Bainchi/Botch	FW, M, EF	R
74	Ulmaceae	*Holoptelea integrifolia* (Roxb).Pl.	Challa	FW	C
75	Verbenaceae	*Lantana camera* L.	Putush	NTP	LC

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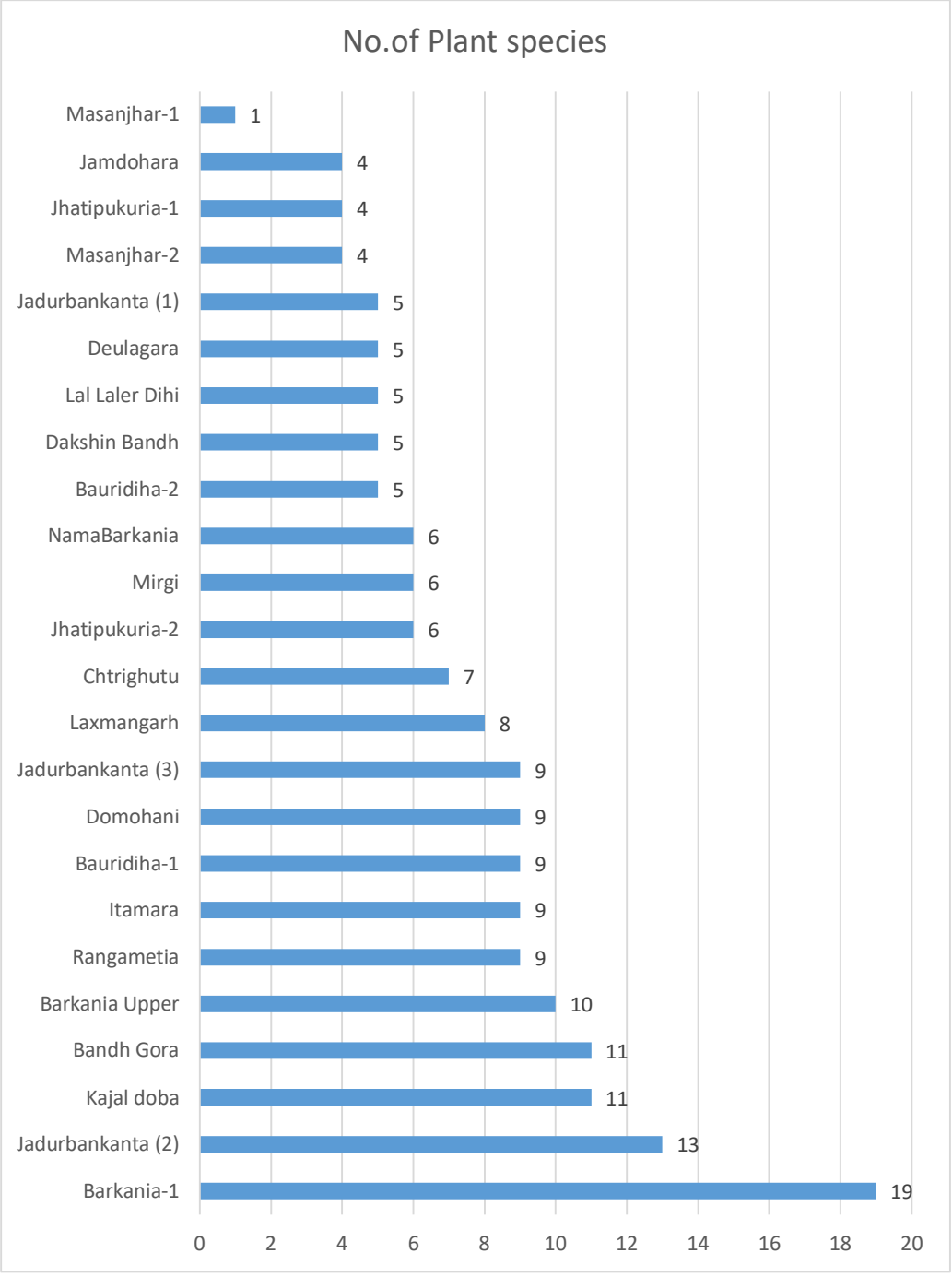

Fig. 1. No. of Plant species reported from the SGs of Hirbandh Block

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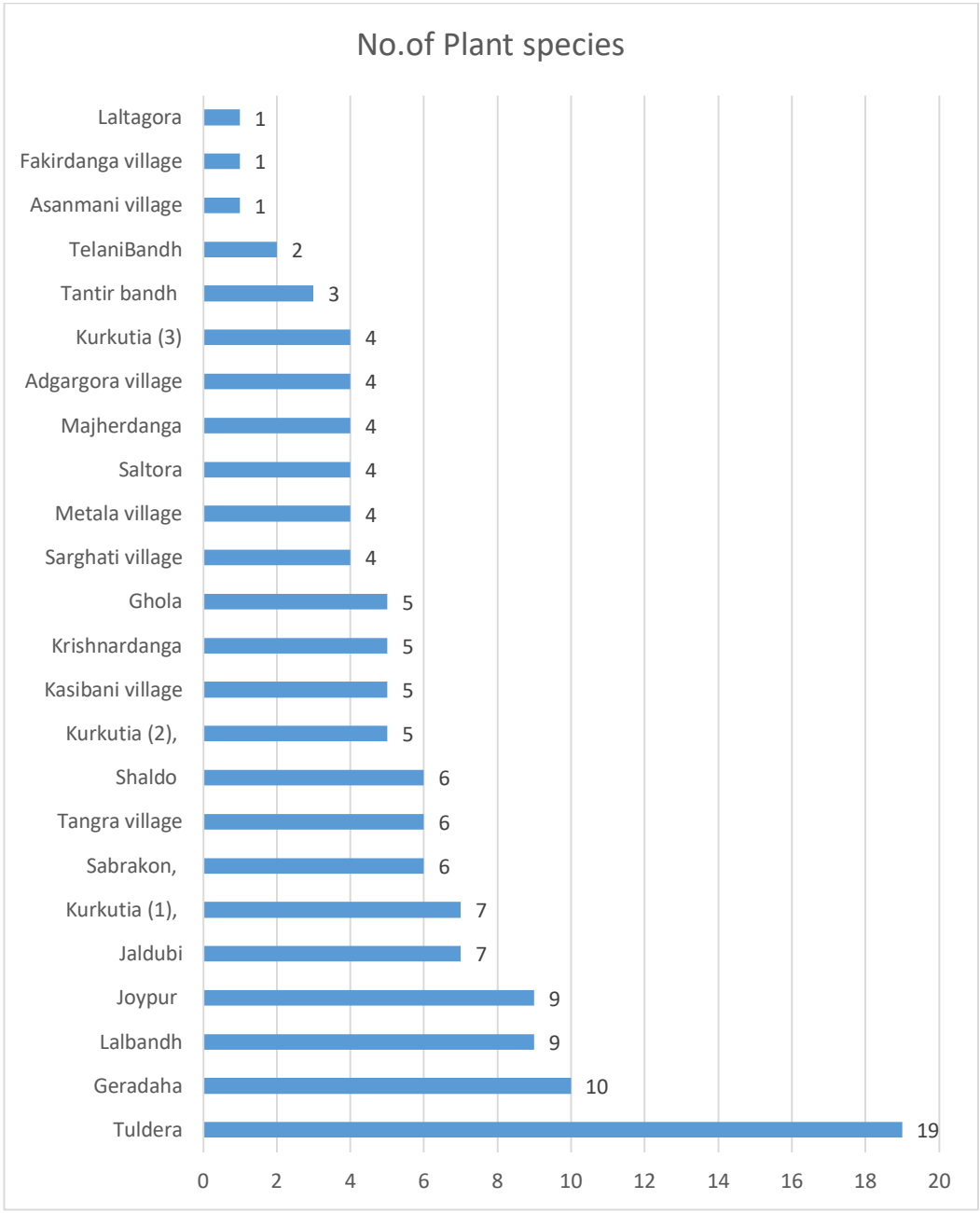

Fig. 2. No. of Plant species reported from the SGs of Taldangra Block

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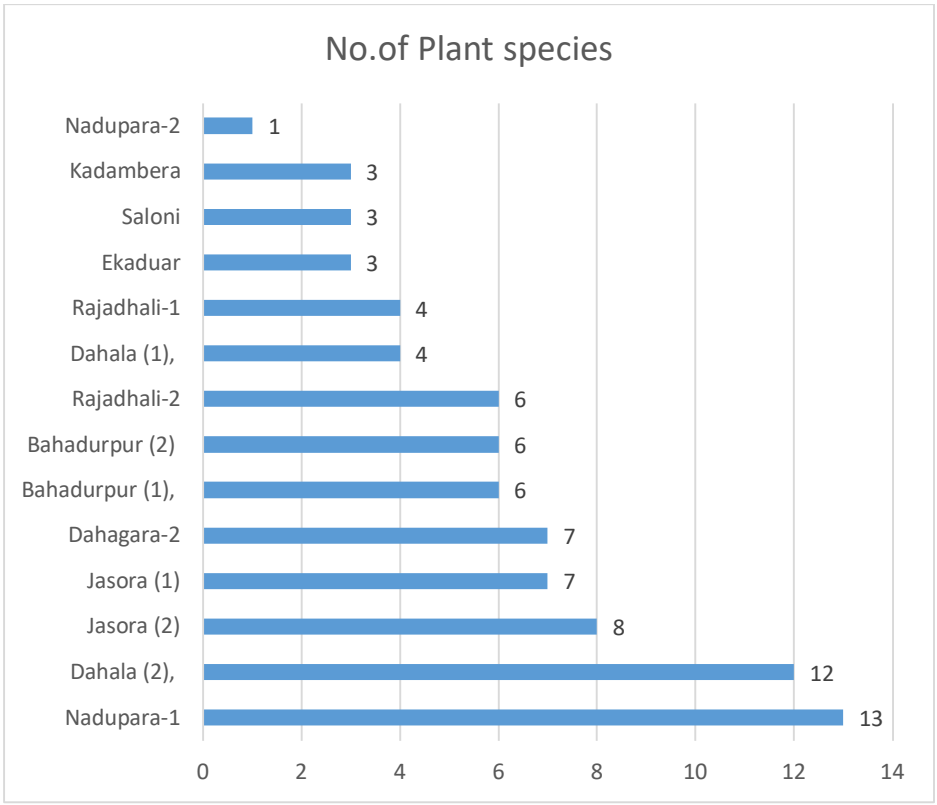

Fig. 3. No. of Plant species reported from the SGs of Khatra Block

Fig. 4. No. of Plant species reported from the SGs of Indpur Block

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Photo of Sacred Groves


H.1


H.2

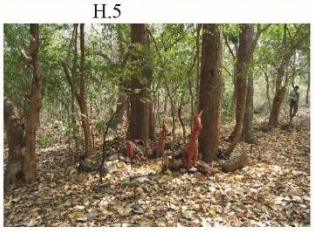

H.3


H.4


H.5


H.6


H.7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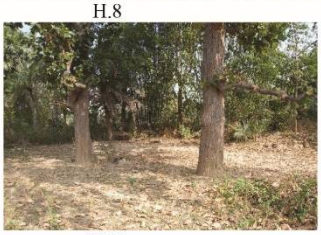
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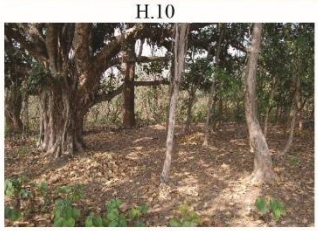
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H.19


H.20


H.21


H.22


H.23


H.24


T.1


T.2


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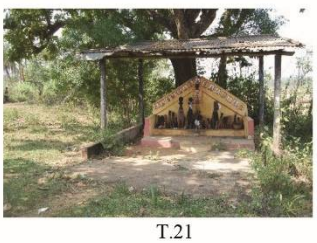
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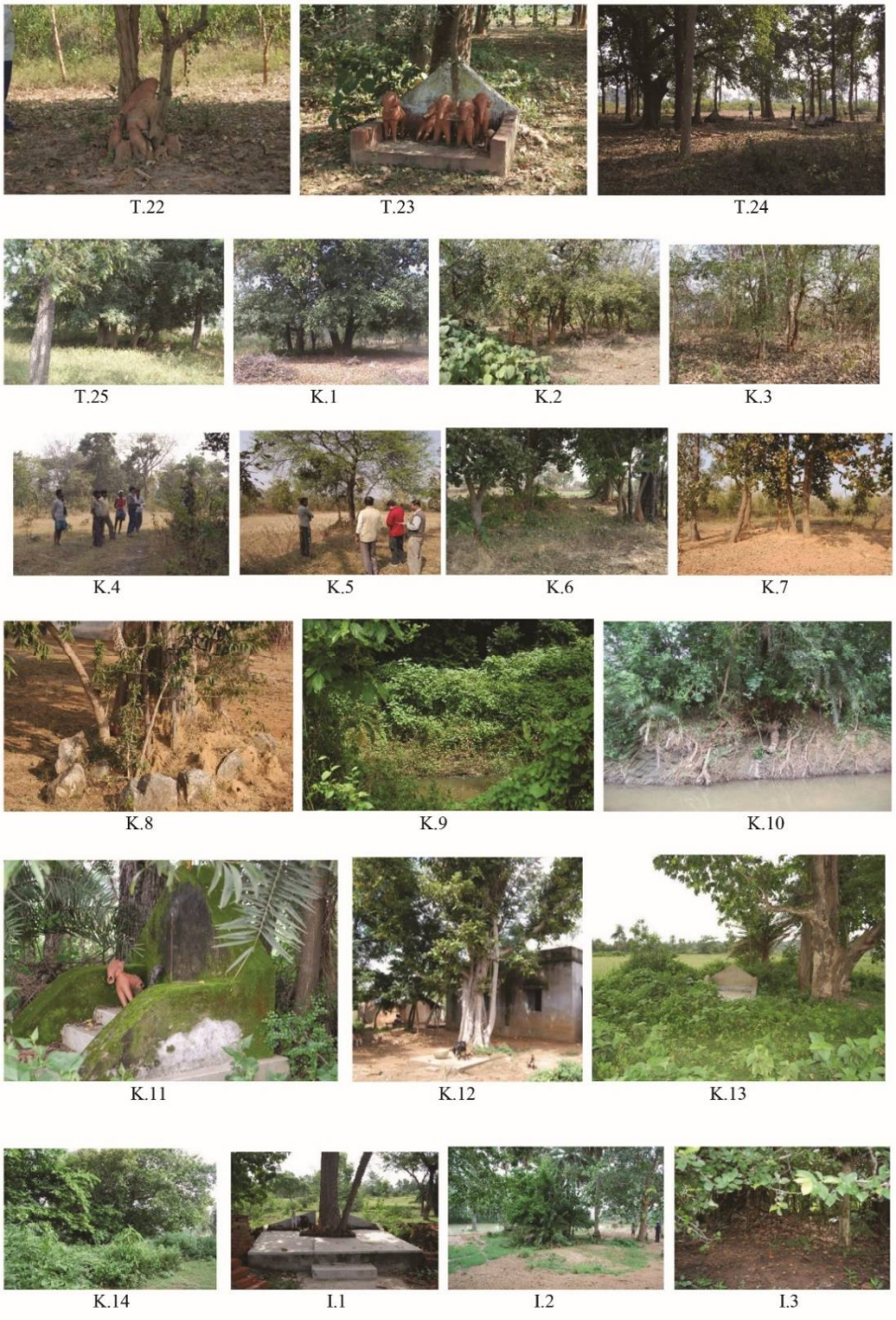

Fig. 5. Photographic representation of different Sacred Groves