Plants of Aravalli

A Pocket Guide

Department of Forests and Wildlife
Government of NCT of Delhi

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Designed for Plantation managers, students, science communicators and agencies (Government and Non Government) for spreading the message of conservation of native plants with due credits.

Acknowledgments

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Editors: Sohail Madan, Geeta Yadav

Content & Research: Rajender Singh, Lakhan Kohli, Jitender Kumar, Harshul Thareja and Ushasi Ghosh

Photo Contributions: Geeta Yadav, Rajender Singh and Sohail Madan

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Micro Habitats of Northern Aravalli Forests

The **Aravalli** Ridge is one of the oldest Geological testimonies of the changes in a landscape. It is a surviving relic of the oldest fold mountains in the world and is a feature worthy of being called a natural heritage. Geologically in Delhi, it represents the last spur of Aravalli mountain ranges. It spreads over 35 km stretch from Bhatti Mines to southeast of the 700 year old Tughlaqabad, branching in different directions, and finally tapering towards the northern end near Wazirabad on the western banks of Yamuna river. It encompasses undulating terrain having plateaus, gentle slopes, shallow valleys, deep ravines, natural drainage channels, ridges, rocky outcrops and loose weathered boulders. The Ridge used to harbour pristine dry deciduous forests represented by Dhau (*Anogeissus pendula),* Palash (*Butea monosperma),* Kaim (*Mitragyna parvifolia*), Khejdi *(Prosopis cineraria),* Rohida *(Tecomella undulata)* etc. Besides these a wide range of tropical thorn forest communities such as Hingot (*Balanites aegyptiaca)* and Goya Khair (*Dichrostachys cinerea)* also exsist in small patches.

The term **habitat** came from the Latin word *"habitātus",* meaning "having been inhabited". It refers to the place or the location where an organism (or a biological population) lives, resides or exists. It is where the species will attempt to be as adaptive as possible. Habitats may be an open geographical area or a specific site, which may be terrestrial or aquatic. A **microhabitat** is a smaller part of the habitat that possesses specific physical conditions that are conducive for an organism. These microhabitats vary in the exposure to light, temperature, humidity and air circulation, among other factors. A **niche** describes the role of an organism in a community. A species' niche encompasses both the physical and environmental conditions it requires (like temperature or terrain) and the interactions it has with other species (like predation or competition). It is imperative to focus on the science and conservation of microhabitats to ensure that highly endemic biodiversity and very spatially specific ecosystems are restored and preserved for future generations.

To understand the lay of the land and species composition (targeted plant

species) before undertaking restoration, various habitat niches have been explained below with the corresponding classification from Champion HG & Seth SK, 1968, A Revised Survey of the Forest Types of India. The vegetation in the "Ridge" is predominantly an open canopied thorny scrub type. The native plants exhibit xerophytic adaptations such as thorny appendages, wax-coated and succulent. It is a semi-arid thorny scrub forest and despite all the anthropogenic pressures of urbanisation and mining in the Ridge. It is noteworthy that samples of native floral and faunal communities still exist. This reinforces the conservation significance of these areas.

1. **Dhau (*Anogeissus pendula)* Forest** or Northern Tropical Dry Deciduous Forest (Sub group, Type II – Dry Tropical Forests)

   Forests of Dhau (*Anogeissus pendula)* exists on the ridges and slopes almost as a pure forest of dhau (about 80-90%), often ridge tops are barren with a few scattered Doodhi (*Wrightia tinctoria)* and slopes dominated by Dhau. This type of habitat is mostly found on steep slopes which are very

rocky. Dhau prefers the rocky habitats and is accompanied by species like Ronjh (*Vachellia leucophloea)*, Barna (*Crateva religiosa*), Kakai (*Anogeissus latifolia)*, Jhad Ber (*Ziziphus nummularia)*, Jungli Karonda (*Carissa spinarum)*.

This serves as an important habitat for Ruddy Mongoose (*Urva smithii*) and snakes like Indian Cobra (*Naja naja*) and Saw Scaled Vipers (*Echis carinatus*). Birds like Lesser Whitethroat (*Curruca curruca*), Indian Peafowl (*Pavo cristatus*), House Sparrow (*Passer domesticus*), Yellow-throated Sparrow (*Gymnoris xanthocollis*), Jungle Prinia(*Prinia sylvatica*) and Ashy Prinia (*Prinia socialis*) abound these forests. This habitat also serves as important hideouts for Leopards (*Panthera pardus*) of the area.

2. **Kumtha Forest** or Northern Tropical Thorn Forest (Sub group, Type II – Dry Tropical Forests)

   Forests of Kumtha (*Senegalia senegal)* exists on gentler slopes or flat rocky ground and is often a sign of degradation of the forests with a large open canopy. Companion species are Khair (*Senegalia catechu)*, Dhau (*Anogeissus pendula)*, Gangeti (*Grewia tenax*), Ronjh (*Vachellia*

leucophloea), Bishtendu (*Diospyros cordifolia)*, Khejdi (*Prosopis cineraria)*, Hingot (*Balanites aegyptiaca*), Jhad Ber (*Ziziphus nummularia)*, Kareel (*Capparis decidua),* Amaltas (*Cassia fistula)*, Aak (*Calotropis gigantea)*, Safed Aak (*Calotropis procera)* and Ghatbor *(Flueggea leucopyrus)*.

Important breeding habitat for Painted Sandgrouse (*Pterocles indicus*) and Indian Thick-knee (endemic) (*Burhinus indicus*) so needs special protection and conservation measures. Birds commonly seen are Indian Bushlarks (*Mirafra erythroptera*), Grey Francolins (*Ortygornis pondicerianus*) and Long-billed Pipits (*Anthus similis*). These forests are a fertile ground for pollinators like generalist butterflies and bumble Bees. Herbivores like Nilgai (*Boselaphus tragocamelus*) are commonly seen in such forests.

3. **Palash (*Butea monosperma)* Forest** or Northern Tropical Dry Deciduous Forest (Sub group, Type II – Dry Tropical Forests)

   Forests of Palash (*Butea monosperma)* are found in drier open valleys or plains with seasonal streamflow, often with deep soil deposits resulting in a very dense canopy and seasonal waterlogging. Companion species are Bishtendu (*Diospyros cordifolia),* Jhad Ber (*Ziziphus nummularia),* Jungli

Karonda (*Carissa spinarum),* Ronjh *(Acacia leucophloea),* Chudail Papdi *(Holoptelea integrifolia),* Jhinjheri *(Bauhinia racemosa),* Kakai *(Flaucourtia indica),* Goondi *(Cordia gharaf),* Metha inderjao *(Holarhena pubscens),* Adulsa *(Adhatoda vasica),* Bistendu *(Diospyros cordifolia),* Hins *(Capparis sepiaria),* Ghatbor*(Flueggea leucopyrus),* Goya khair *(Dichrostachys cinerea).*

Purple Sunbirds (*Cinnyris asiaticus*), Yellow throated woodpeckers (*Piculus flavigula*), Black rumped Flamebacks (*Dinopium benghalense*) along with passage migrant flycatchers like Grey-headed Canary-Flycatchers (*Culicicapa ceylonensis*), Verditer Flycatchers (*Eumyias thalassinus*) are common in these areas. Nilgais (*Boselaphus tragocamelus*) and Golden Jackals (*Canis aureus*) use these broad valleys for moving around the forest. Most Leopard (*Panthera pardus*) claw marks on the trees are found in such areas. Palash is a larval host plant for Dark Cerulean (*Jamides bochus*), Lemon Emigrant (*Catopsilia pomona),* Pea Blue (*Lampides boeticus*) and Gram Blue (*Euchrysop scnejus*) butterflies.

4. **Kaim Forest** or Northern Tropical Dry Mixed Deciduous Forest (Sub group,

Type II – Dry Tropical Forests)

Forests of Kaim (*Mitragyna parvifolia*) are often found in valleys of the Salai (*Boswellia serrata*) or Dhau (*Anogeissus pendula*) forest slopes with deep and narrow seasonal streams. The water retention in these streams is for a longer period of time and such areas have very dense vegetation and trees with broad leaves. Companion species are: Dhak *(Butea monosperma),* Kala Siris *(Albizia odoratissima),* Bistendu *(Diospyros cordifolia),* Jhinjheri *(Bauhinia racemosa),* Barna *(Crateava adansonii),* Peepal *(Ficus religiosa),* Badh *(Ficus benghalensis)*, Goolar *(Ficus racemosa)* and Bada doodhi *(Wrightia arborea).*

Usually, such wooded areas have a lot of bee hives. Birds like Oriental Honey Buzzard (*Pernis ptilorhynchus*), Marshall's Iora (*Aegithina nigrolutea*), yellow-footed Green Pigeons (*Treron phoenicopterus*), and Indian Grey Hornbills (*Ocyceros birostris*) can be found here. These deep valleys are important for the local movement of mammals like Asian Palm

Civet (*Paradoxurus hermaphroditus*), Small Indian Civet (*Viverricula indica*) and Leopards (*Panthera pardus*). Fruiting season attracts lots of pollinators like bees, butterflies and Squirrels.

5. **Khajur Forest** or Sub-tropical Hill Forest (Sub group, Type II – Dry Tropical Forests)

   Forests of Khajur*(Phoenix sylvestris)* exists in areas of perennial streams or water bodies. Deep valleys of rocks and very small boulders making for stagnant pools of water. Scarce landscape in the Delhi Ridge and can only be found in small specific spots. Habitat is also found in extremely rare natural springs. Characterized by deep valleys and rocky outcrops, companion species are Goolar *(Ficus racemosa)*, Jungli Anjeer *(Ficus palmata)*, Lasorda *(Cordia dichotoma)*, Gadha Palash *(Erythrina stricta),* Chudail Papdi (*Holoptelea integrifolia)* with understory of Adusa *(Justica adhatoda)*and Pisangna *(Grewia flavescens).*

Baya Weavers (*Ploceus philippinus*) prefer such habitats especially if grasses are available. The availability of water for longer periods makes these forests an ideal breeding ground for the birds. Raptors like Short-toed Snake-Eagle (*Circaetus gallicus*) and Crested Serpent-Eagle (*Spilornis cheela*) can be easily seen here. This is also an important habitat for Jungle Cats (*Felis chaus*).

6. **Desi Babool Forest** or Northern Tropical Thorn Forests (Sub group, Type II – Dry Tropical Forests)

   Desi Babool (*Vachellia nilotica*) forests are found in valleys with deep soil deposits which are often waterlogged during monsoon. Generally lacking surface water but soil retains water for a very long time just below the surface. Growth of Moss and Liverworts often indicates the water levels in the area. Companion species are: Kareel *(Capparis decidua),*Kanthari *(Capparis sepiaria),* Jaal *(Salvadora persica),* Peelu *(Salvadora oleoides)*,

Ber *(Ziziphus mauritiana),* and Dessert Cotton grass.

These forests serve as breeding habitat for Striped Hyenas (*Hyaena hyaena*) in the region. Latrine spots of Nilgai can be identified near the top of such valleys. Birds like Black Eagle (*Ictinaetus malaiensis*) have been recorded here and Long-tailed Shrikes (*Lanius schach*) and Bay-backed Shrikes (*Lanius vittatus*) are commonly seen here. Flowers and pods of Desi Babool attract lots of insects.

7. **Khair Forest** or Northern Tropical Thorn Forests (Sub group, Type II – Dry Tropical Forests)

   Found on the gentler ridges and slopes of hills. Dry slopes with very little topsoil are seen in this habitat. The canopy is open and vegetation sparse. Companion species are Dhau *(Anogeissus pendula),* Ronjh *(Acacia leucophloea),*Kumath *(Acacia Senegal),* Barna *(Crateava adansonii),* Doodhi *(Wrightia tinctoria),* Chamrod *(Ehretia laevis),* Jhinjheri *(Bauhinia*

*racemosa),*Ghatbor *(Flueggea leucopyrus),* and Goya khair *(Dichrostachys cinerea).*

The forest is an excellent habitat for reptiles and rodents thus supporting larger populations of raptors like Black-winged Kite (*Elanus caeruleus*), Steppe Eagle (*Aquila nipalensis*) and various owls. Golden Jackals (*Canis aureus*)can also be seen easily here. Khair (*Senegalia catechu)* flowers attract lots of beetles, bugs, bees and butterflies.

8. **Salai Forest** or Northern Dry Mixed Deciduous Forest (Sub group, Type II – Dry Tropical Forests)

   At the highest hills with ridges and spurs where soil usually has big boulders and pebbles. The soil is also very shallow and dry. Companion species are Kullu *(Sterculia urens),* Gurjan *(Lannea coromendalica*), Dhau *(Anogeissus pendula),* Gamhar *(Gmelina arborea),* Barna *(Crateava adansonii),* Doodhi *(Wrightia tinctoria),* Chamrod *(Ehretia laevis),* Kakai *(Flaucourtia indica),* Jhinjheri *(Bauhinia racemosa)* and an understory of

MethaInderjao*(Holarhena pubscens)* and Pisangna *(Grewia flavescens)*.

Serves as vantage points for apex predators like the Leopard and is also a breeding habitat for Endangered Egyptian Vulture *(Neophron percnopterus)* and Indian Eagle Owl *(Bubo bengalensis).*

9. Grasslands

Grasslands are found in some protected and open areas with deep dry soil deposits, flat land or mining pits. These can also occur in seasonal wetlands around water bodies. Grass species like (*Saccharum benghalensis)*, (*Saccharum spontaneum), (Panicum antidotale), (Dactylocteniumaegyptium), (Apluda mutica), (Aristida hystrix), (Aristida adscensionis)* and (*Andrographis paniculata)* are dominant along with companion tree species like Khajur (*Phoenix sylvestris*), Desi Babool (*Vachellia nilotica*), Khejdi (*Prosopis cineraria),* Farash *(Tamarix dioica)* dotting the landscape.

Most threatened of our micro habitats**.** For Supporting larger populations

of herbivores they are very important because they support higher densities of grazing animals. Places where there is too little moisture for trees to grow in great numbers those areas should be covered in grasses and grass-like plants that have growing points close to the soil and can keep on growing even after being nibbled on by animals. Seed-ball broadcasting and dibbling could be effective ways to achieve this.

Pollinators like bees and bumblebees thrive in grasslands where there are many kinds of flowers. Grasslands are good habitats for ladybirds, ground beetles and other beneficial insects that feed on pest insects and contribute to biological control.

Phenology of Plants for Delhi Ridge

Phenology is the study of the timing of recurring biological events, the causes of their timing with regard to biotic and abiotic forces, and the interrelation among phases of the same or different species (Leith 1974), and how these are influenced by seasonal and interannual variations in climate, as well as habitat factors.

It is nature's calendar, a key component of life on earth. Changes in phenological events like flowering, fruiting and animal migration are among the most sensitive biological responses to climate change and natural resource management.

Phenology is the leading indicator for natural resource managemers, predicting the changes in animal or plant population i.e., whether it will grow or shrink, their living pattern and other associated factors. It critical applications include management of invasive species and forest pests, understanding of ecological processes, assessment of the vulnerability of species, populations, and ecological communities to ongoing climate change.

Trees

Sr. No.	Common Name	Scientific Name	Hindi Name	Seed Collection Time	Fruiting Time	New Leaf Time
1	Gondi	*Cordia gharaf*	गोंदनी	January-February	January	June - July
2	Hingot	*Balanites aegyptiaca*	हिंगोट	March-April	January-February	May-June
3	Sonjna (Wild)	*Moringa concanensis*	जंगली सहजन,	March-July	February-March	Feb - March
4	Indian Coral Tree	*Erythrina stricta*	धौल ढाक	May-June	April-May	March-April
5	Ber	*Ziziphus mauritiana*	बेर	March-April	December-March	June - July

Sr. No.	Common Name	Scientific Name	Hindi Name	Seed Collection Time	Fruiting Time	New Leaf Time
6	Ronjh	*Vachellia leucophloea*	रेवंजा	April	March-April	May
7	Amaltas	*Cassia fistula*	अमलतास	April -May	March-April	March - April
8	Shehtoot	*Morus alba*	शहतूत	April-May	April-May	Feb - March
9	Bishtendu	*Diospyros cordifolia*	बिसतन्दु	December –February	June-December	March
10	Kulu	*Sterculia urens*	कुलु	April-May	January-April	May - June
11	Bael Patra	*Aegle marmelos*	बेल	April-May	March-April	March - April

Sr. No.	Common Name	Scientific Name	Hindi Name	Seed Collection Time	Fruiting Time	New Leaf Time
12	Chamrod	*Ehretia laevis*	दतरँगा, तमोरिया	April-June	March-April	March - May
13	Kala Indrajao	*Wrightia arborea*	धरौली, दूधी	April-December	April-December	April
14	Peelu	*Salvadora persica*	पीलू, मिसवाक	April-May	April-May	Feb
15	Semal	*Bombax ceiba*	सेमल	May	February-March	April - May
16	Falsa	*Grewia asiatica*	फालसा	May-June	May-June	April
17	Kumttha	*Senegalia senegal*	कुम्ट्ठा	May-June	June	May

Sr. No.	Common Name	Scientific Name	Hindi Name	Seed Collection Time	Fruiting Time	New Leaf Time
18	Desi Babool	*Vachellia nilotica*	देसीबबूल	June	September	Feb
19	Sonjna	*Moringa oleifera*	सहजन	June-July	May-June	March
20	Doodhi	*Wrightia tinctoria*	दुधी , कालाकुडा	June - July	January-February	April - May
21	Kusum	*Schleichera oleosa*	कुसुम	June – August	April-May	March - April
22	Khejdi	*Prosopis cineraria*	जंड, खेजड़ी	June-August	May-August	March
23	Roheda	*Tecomella undulata*	रोहेड़ा	April-June	March-April	Feb

Sr. No.	Common Name	Scientific Name	Hindi Name	Seed Collection Time	Fruiting Time	New Leaf Time
24	Palash	*Butea monosperma*	पलाश, ढाक	April-June	April	May - June
25	Gamhar	*Gmelina arborea*	गम्हड़	July-August	May-June	April - May
26	Lasoda	*Cordia dichotoma*	लसौढ़ा	July-August	May -June	April
27	Jamun	*Syzygium cumini*	जामुन	July-September	May-June	February
28	Khajur	*Phoenix sylvestris*	खजूर	July	June-July	March

Sr. No.	Common Name	Scientific Name	Hindi Name	Seed Collection Time	Fruiting Time	New Leaf Time
29	Amla	*Phyllanthus emblica*	आंवला	July-September	February-June	February
30	Pilkhan	*Ficus virens*	पिलखन, पाखड़	August-October	July-September	March
31	Kaim	*Mitragyna parvifolia*	कैम	August-September	July-August	April - May
32	Khair	*Senegalia catechu*	दन्तधावन, खैर	August-September	July-August	May
33	Jhau	*Tamarix diocia*	फ़राश	September-October	August-September	March
34	Barna	*Crateva religiosa*	बर्नी, बर्ना	September	May-September	Feb - March

Sr. No.	Common Name	Scientific Name	Hindi Name	Seed Collection Time	Fruiting Time	New Leaf Time
35	Anjeeri	*Ficus Palmata*	अंजीरी	May-June	April-June	April - May
36	Kanju	*Holoptelea intergrifolia*	चिलबिल, कान्जू	April-May	Mar-April	May - June
37	Dhau	*Anogeissus pendula*	धाओ, धोक	November-February	September-December	May - June
38	Tamarind	*Tamarindus indica*	इमली	November-December	October-December	February
39	Banyan/ Bargad	*Ficus bengalensis*	बरगद	November to January	November-January	January

Sr. No.	Common Name	Scientific Name	Hindi Name	Seed Collection Time	Fruiting Time	New Leaf Time
40	Jhinjheri	*Bauhinia racemosa*	कठमूली, झिंझेरी	December-February	October-November	March
41	Siris (White)	*Albizia lebbeck*	सरस, शिरीष	December – March	November-March	March
42	Baheda	*Terminalia bellirica*	बहेड़ा	December-January	October-December	June-July

Small Trees and Shrubs

Sr. No.	Common Name	Scientific Name	Hindi Name	Seed Collection Time	Fruiting Time	New Leaf Time
1	Harsingaar	*Nyctanthes arbor-tristis*	हरसिंगार	January-March	November-December	June - July
2	Satavari	*Asparagus racemosus*	सतावरी	January-February	December-January	January
3	Ashwagandha	*Withania somnifera*	अश्वगंधा	January-March	December	July
4	Jungli Karonda	*Carissa spinarum*	जंगलीकरोंदा	January-March	October-December	June - July

Sr. No.	Common Name	Scientific Name	Hindi Name	Seed Collection Time	Fruiting Time	New Leaf Time
5	Blackberry (Jungle Jujube)	*Ziziphus oenoplia*	मकोई	January-March	October-January	June - July
6	Vajradanti	*Barleria prionitis*	वज्रदंती	March-April	December-February	July
7	Chitrak	*Plumbago zeylanica*	चित्रक	April	March-April	February
8	Hins	*Capparis sepiaria*	कंथारी	May-June	October-May	March - April
9	Kareel	*Capparis decidua*	कैर, करील	May – July	May	Feb - April

Sr. No.	Common Name	Scientific Name	Hindi Name	Seed Collection Time	Fruiting Time	New Leaf Time
10	Kadipatta	*Murraya koenigii*	कढ़ीपत्ता	May-July	February-May	January
11	Goyakhair	*Dichrostachys cinerea*	खेरी, शमी	May-September	May-September	May - June
12	Adusa	*Justicia adhatoda*	वसाका, अडूसा	June-August	December-June	May - June
13	Safed Aak	*Calotropis gigantea*	ऑक	August-September	July-August	February
14	Aak	*Calotropis procera*	सफेदऑक	August-September	July-August	February

Sr. No.	Common Name	Scientific Name	Hindi Name	Seed Collection Time	Fruiting Time	New Leaf Time
15	Ratti, Rosary Pea	*Abrus precatorius*	रत्ती	October-April	October-April	January
16	Gangeti	*Grewia tenax*	गंगेर, गंगेटी	December-January	October-December	February - March
17	Jhadber	*Ziziphus nummularia*	झड़बेर	December-February	October-February	February
18	Giloy	*Tinospora cordifolia*	गिलोय	N/A	N/A	N/A

Pretreatment methods for improved germination of Aravalli seeds

Maintaining the quality of seed is dependent on many environmental factors, some of which are moisture, temperature, humidity, and storage conditions. Even though these factors are properly accounted for, seed quality may still be reduced by certain seedborne diseases or destroyed by insects and other pest. Therefore, treatment of the seeds before sowing is important in many species to improve the germination, vigour potential and as well as to maintain the health of the seed.

Pre-treatment methods for improved germination of Aravalli seeds

S.N.	Pre-treatment	Species
1	No treatment or soaking in cold water for 2-3 hours	Peelu (*Salvadora persica*), Shahtoot (*Morus alba*), Bael Patra (*Aegle marmelos*), Doodhi (*Wrightia tinctoria*), Palash (*Butea monosperma*), Dhau (*Anogeissus pendula*), Semal (*Bombax ceiba*), Kulu (*Sterculia urens*), Lasoda (*Cordia dichotoma*),

S.N.	Pre-treatment	Species
		Jhau (*Tamarix diocia*), Jamun (*Syzygium cumini*), Banyan/Bargad (*Ficus bengalensis*), Kaim (*Mitragyna parvifolia*), Indrajao (*Holarrhena pubescens*), Ashwagandha (*Withania somnifera*), Aak (*Calotropis gigantia*), Safed Aak (*Calotropis procera*), Chitrak (*Plumbago zeylanica*), Ratti/ Rosary Pea (*Abrus precatorius*), Anjeeri (*Ficus Palmata)*
2	Soaking in cold/tepid water for 24 hours	Roheda (*Tecomella undulata*), Sonjna (*Moringa oleifera*), Kala Siris (*Albizia odoratissima*), Barna (*Crateva religiosa*), Gondi (*Cordia gharaf*), Chamrod (*Ehretia laevis*), Harsingar (*Nyctanthes arbor-tristis*), Kadipatta (*Murraya koenigii*), Hins (*Capparis sepiaria*), Gangeti (*Grewia tenax*), Satavari (*Asparagus racemosus*), Sonjna (Wild) *(Moringa concanensis),* Kanju (*Holoptelea intergrifolia),* Indian Coral Tree *(Erythrina stricta)*

S.N.	Pre-treatment	Species
3	Soaking in cold/tepid water for 48 hours	Khair (*Senegalia catechu*), Tamarind (*Tamarindus indica*), Kala Indrajao (*Wrightia arborea*), Falsa (*Grewia asiatica*), Jungli Karonda (*Carissa spinarum*), Goyakhair (*Dichrostachys cinerea*), Blackberry (Jackal Jujube) (*Ziziphus oenoplia*)
4	Soaking in cold/tepid water for 4-6 days	Amaltas (*Cassia fistula*), Kumttha (*Senegalia senegal*), Gamhar (*Gmelina arborea*)
5	Immersion in hot water (80-1000C) then allowing it to cool followed by soaking for 24 hours	Ber (*Ziziphus mauritiana*), Khejdi (*Prosopis cineraria*), Kusum (*Schleichera oleosa*), Siris (White) (*Albizia lebbeck*), Kumttha (*Senegalia senegal*), Khair (*Senegalia catechu*), Gamhar (*Gmelina arborea*), Jhadber (*Ziziphus nummularia*), Baheda (*Terminalia bellirica)*

S.N.	Pre-treatment	Species
6	Treatment with boiling water for 5 to 15 minutes followed by soaking for 12 hours or 24 hours or 48 hours	Ronjh (*Vachellia leucophloea*), Amaltas (*Cassia fistula*), Desi Babool (*Vachellia nilotica*), Jhinjheri (*Bauhinia racemosa*), Amla (*Phyllanthus emblica*), Hingot (*Balanites aegyptiaca)*
7	Treatment with concentrated sulphuric acid for 2-30 minutes or more followed by washing with cold water	Ber (*Ziziphus mauritiana*), Desi Babool (*Vachellia nilotica*), Siris (White) (*Albizia lebbeck*), Jhadber (*Ziziphus nummularia*)
8	Mechanical scarification or breaking of seed coat followed by soaking in cold water	Ber (*Ziziphus mauritiana*), Jhadber (*Ziziphus nummularia*)

S.N.	Pre-treatment	Species
9	Fermentation or cow dung slurry treatment for two weeks or more, till the seeds show sprouting	Desi Babool (*Vachellia nilotica*), Pilkhan (*Ficus virens*), Baheda (*Terminalia bellirica),* Anjeeri (*Ficus Palmata)*
10	Removal of pulp by peeling or rubbing and washing	Kareel (*Capparis decidua*), Bishtendu (*Diospyros montana*), Gondi (*Cordia gharaf*), Kala Indrajao (*Wrightia arborea*), Falsa (*Grewia asiatica*), Jamun (*Syzygium cumini*), Amla (*Phyllanthus emblica*)

Site Specific Suitability of Species

Sr. No.	Common Name	Scientific Name	Soil Regime	Sunlight Requirement/ Growth pattern	Moisture Requirement
1	Ber	*Ziziphus mauritiana*	Rocky, dry devoid of topsoil	Full sunlight, moderate growth	Low
2	Peelu	*Salvadora persica*	Saline, sandy and dry	Full sunlight but in growing stage does well in shade. From bust to a tree. Very slow growing	Low
3	Ronjh	*Vachellia leucophloea*	Dry, sandy and gravely soil	Full sunlight, moderate growth	Low
4	Amaltas	*Cassia fistula*	Dry soil with medium topsoil	Full sunlight, fast growth	Medium

Sr. No.	Common Name	Scientific Name	Soil Regime	Sunlight Requirement/ Growth pattern	Moisture Requirement
5	Shahtoot	*Morus alba*	Semi moist soil with rich topsoil	Full sunlight, moderate growth, can grow in partial shade	High
6	Kareel	*Capparis decidua*	Very dry, shallow topsoil or sandy	Very slow growth, full sunlight, shrub to tree growing pattern	Very Low
7	Bishtendu	*Diospyros cordifolia*	Deep soil, semi moist, stunted growth for prolonged periods	Very slow growth initially, grows in partial shade. Can tolerate sun also	Low

Sr. No.	Common Name	Scientific Name	Soil Regime	Sunlight Requirement/ Growth pattern	Moisture Requirement
8	Khejdi	*Prosopis cineraria*	Dry rocky soil as well as sandy coarse soil	Full sunlight, medium growth	Low
9	Desi Babool	*Vachellia nilotica*	Deep sand or soil deposit, semi moist areas preferred	Full sunlight, fast growth	Medium
10	Roheda	*Tecomella undulata*	Dry, sandy, coarse soil with shallow top soil	Full sunlight, very slow growth, high ground maintenance (threatened)	Low

Sr. No.	Common Name	Scientific Name	Soil Regime	Sunlight Requirement/ Growth pattern	Moisture Requirement
11	Sonjna	*Moringa oleifera*	Generally adaptive to varied soil regimes	Full sunlight, fast growth	Medium
12	Bael Patra	*Aegle marmelos*	Rich topsoil, semi moist, can withstand period of dryness	Full sunlight, slow growth (threatened)	Medium
13	Doodhi	*Wrightia tinctoria*	Rocky slopes, with dry gravely soil	Full sunlight, slow growth	Medium
14	Kusum	*Schleichera oleosa*	Rich top soil, semi moist	Full sunlight, fast growth	Medium

Sr. No.	Common Name	Scientific Name	Soil Regime	Sunlight Requirement/ Growth pattern	Moisture Requirement
15	Kaim	*Mitragyna parvifolia*	Deep soil deposits, fertile and rich in organic matter	Full sunlight, moderate growth	Medium
16	Palash	*Butea monosperma*	Dry sandy, coarse soil, survives water logging for short periods	Full sunlight, moderate growth	Medium
17	Dhau	*Anogeissus pendula*	Rocky slopes, where nothing else will grow. rich quantity of mulching and rich soil over the rocky slopes	Starts growth in shade but can tolerate full sun as a tree	Low

Sr. No.	Common Name	Scientific Name	Soil Regime	Sunlight Requirement/ Growth pattern	Moisture Requirement
18	Kanju	*Holoptelea intergrifolia*	Deep sandy soil	Full sunlight, fast growth	Medium
19	Jhinjheri	*Bauhinia racemosa*	Dry deep soils with little moisture	Partial shade to full sun, moderate growth	Medium
20	Siris (White)	*Albizia lebbeck*	Sandy, rich topsoil and little moisture	Full sunlight, fast growth	Medium
21	Pilkhan	*Ficus virens*	Deep rich organic soil	Full sunlight, fast growth	Medium
22	Barna	*Crateva religiosa*	Sandy, rich soil	Full sunlight, slow growth (threatened)	Low

Sr. No.	Common Name	Scientific Name	Soil Regime	Sunlight Requirement/ Growth pattern	Moisture Requirement
23	Sonjna (Wild)	*Moringa concanensis*	Adapted to very dry soil, does well in others as well	Full sunlight, fast growth	Low
24	Kumttha	*Senegalia senegal*	Dry slopes, with rocks and gravel.	Full sunlight, medium growth	Low
25	Anjeeri	*Ficus Palmata*	Deep sandy soil	Full sunlight, fast growth	High
26	Semal	*Bombax ceiba*	Deep soils with high moisture and rich topsoil	Full sunlight, medium growth	Low
27	Khair	*Senegalia catechu*	Gentle slopes of rock and gravel. Does well in sandy areas	Full sunlight, medium growth	Low

Sr. No.	Common Name	Scientific Name	Soil Regime	Sunlight Requirement/ Growth pattern	Moisture Requirement
28	Gondi	*Cordia gharaf*	Dry sandy, rich soil	Full sunlight, medium growth	Low
29	Kala Indrajao	*Wrightia arborea*	Rocky, rich soil with high moisture and humus	Full sunlight, medium growth	Low
30	Indian Coral Tree	*Erythrina stricta*	Rocky and dry soil	Full sunlight, fast growth	Low
31	Kulu	*Sterculia urens*	Bouldery, hill tops, gravel and pebbles	Full sunlight, slow growth	Low
32	Falsa	*Grewia asiatica*	Rich topsoil, dry sandy soil	Full sunlight, medium growth	Medium

Sr. No.	Common Name	Scientific Name	Soil Regime	Sunlight Requirement/ Growth pattern	Moisture Requirement
33	Chamrod	*Ehretia laevis*	Dry rocky soil, with seasonal water flow	Full sunlight, medium growth	Low
34	Gamhar	*Gmelina arborea*	Deep, rich, high moisture soil	Full sunlight, fast growth	Medium
35	Harsingaar	*Nyctanthes arbor-tristis*	Dry, sandy and little water retention	Full sunlight, medium growth	Medium
36	Lasoda	*Cordia dichotoma*	Rich topsoil, well drained and high on moisture	Full sunlight, medium growth	Medium
37	Kadipatta	*Murraya koenigii*	Rich topsoil and well-drained soil	Full sunlight, medium growth	Medium

Sr. No.	Common Name	Scientific Name	Soil Regime	Sunlight Requirement/ Growth pattern	Moisture Requirement
38	Jhau	*Tamarix diocia*	Very saline, moisture rich, sandy to loamy soil	Full sunlight, fast growth	High
39	Tamarind	*Tamarindus indica*	Dry sandy soil with very little moisture	Full sunlight, fast growth	Low
40	Jamun	*Syzygium cumini*	Rich topsoil with well-drained soil	Full sunlight, medium growth	Medium
41	Khajur	*Phoenix sylvestris*	Sandy, pebbly soil with rocks with very high water retention	Full sunlight, slow growth	Medium
42	Amla	*Phyllanthus emblica*	Flat, dry, sandy soil with very little moisture	Full sunlight, medium growth	Medium

Sr. No.	Common Name	Scientific Name	Soil Regime	Sunlight Requirement/ Growth pattern	Moisture Requirement
43	Hingot	*Balanites aegyptiaca*	Hardy tolerates a variety of soils.	Full sunlight, fast growth	Very Low
44	Banyan/ Bargad	*Ficus bengalensis*	Rich, sandy to loamy soil	Full sunlight, medium growth	Medium
45	Baheda	*Terminalia bellirica*	Deep sandy soil	Full sunlight, fast growth	Medium
46	Jhadber	*Ziziphus nummularia*	Very dry, rocky, open soils with low moisture	Full sunlight, fast growth, shrub	Very Low
47	Kanthari	*Capparis sepiaria*	Dry, stony, rocky, undergrowth. Very hardy	Full sunlight, slow growth	Very Low
48	Jungli Karonda	*Carissa spinarum*	Dry, open rocky soil. Very hardy	Full sunlight, medium growth	Very Low

Sr. No.	Common Name	Scientific Name	Soil Regime	Sunlight Requirement/ Growth pattern	Moisture Requirement
49	Goyakhair	*Dichrostachys cinerea*	Dry, open rocky soil and very hardy	Full sunlight, medium growth	Very Low
50	Gangeti	*Grewia tenax*	Adapted to dry regions, does well in sandy, rocky orgravely soil. Very hardy	Full sunlight, medium growth	Very Low
51	Vajradanti	*Barleria prionitis*	Rocky, dry open areas, grows as undergrowth also but best in open areas	Full sunlight, fast growth	Very Low

Sr. No.	Common Name	Scientific Name	Soil Regime	Sunlight Requirement/ Growth pattern	Moisture Requirement
52	Adusa	*Justicia adhatoda*	Rocky to sandy soil grows well in shade. Needs some organic content in the soil	Partial shade, fast growth	Medium
53	Ashwagandha	*Withania somnifera*	Rich top soil and well-drained soil	Full sunlight, fast growth	Medium
54	Sofid Aak	*Calotropis gigantea*	Plant of degraded landscapes, does well in dry open rocky or sandy areas. Hardy	Full sunlight, medium growth	Low

Sr. No.	Common Name	Scientific Name	Soil Regime	Sunlight Requirement/ Growth pattern	Moisture Requirement
55	Aak	*Calotropis procera*	Plant of degraded landscapes, does well in dry open rocky or sandy areas. Hardy	Full sunlight, medium growth	Low
56	Chitrak	*Plumbago zeylanica*	Rich sandy to loamy soil with moderate moisture	Full sunlight, medium growth	Medium
57	Blackberry (Jungle Jujube)	*Ziziphus oenoplia*	Dry open rocky or sandy areas. Hardy	Full sunlight, medium growth, creeper	Low
58	Ratti, Rosary Pea	*Abrus precatorius*	Dry open flat, with some organic matter	Full sunlight, medium growth, creeper	Low

Sr. No.	Common Name	Scientific Name	Soil Regime	Sunlight Requirement/ Growth pattern	Moisture Requirement
59	Satavari	*Asparagus racemosus*	Dry open flat with sandy to rocky soil	Full sunlight, medium growth, creeper	Low
60	Giloy	*Tinospora cordifolia*	Rich loamy to dry soil. High moisture	Full sunlight, fast growth, creeper	Medium

Seed Science

S. N.	Common Name	Scientific Name	Seed Collection Time	Viability	No. of seeds per 100 gm	Germination Percent	Germination Period (Days)	Notes on Harvesting Seed/ Germination
1	Ber	*Ziziphus mauritiana*	March end - Early April	1-2y	150-nuts, 3000 seeds	70	20	Storage of the seed for 4 months to let it after-ripen improves germination. Only collect when dull red collect berries for collection
2	Peelu	*Salvadora persica*	May - June	1m	1100	25-30	15-20	Seeds are coated with sand to reduce the chances of fungal infection. Collect deep red seeds, collection must be done swiftly as birds will eat them before they can be collected.
3	Ronjh	*Vachellia leucophloea*	April	1y	5000	28	30	Collect seed pods when dark brown in colour and ready to crack.

S. N.	Common Name	Scientific Name	Seed Collection Time	Viability	No. of seeds per 100 gm	Germination Percent	Germination Period (Days)	Notes on Harvesting Seed/ Germination
4	Amaltas	*Cassia fistula*	April - Early May	Many years	600-700	22-60	10-20	Seed collection is done when pods are dark brown in colour
5	Shahtoot	*Morus alba*	April-May	2y	42-800-46,500	40	45	Berries should be collected by laying a sheet on the ground before other animals get to them
6	Kareel	*Capparis decidua*	May – July and September – November	3m	150	10	40	Fruit consists of 3 to 5 seeds and collection should be done when deep red colour appears. Plant seeds sporadically so constant vigilance on the mother plant is required.

S. N.	Common Name	Scientific Name	Seed Collection Time	Viability	No. of seeds per 100 gm	Germination Percent	Germination Period (Days)	Notes on Harvesting Seed/ Germination
7	Bishtendu	*Diospyros montana*	Dec – May	1y	200	50	45	Easily collected from seasonal streams, should be deep brown color or black. Yellow berries can be taken. The pulp needs to be removed before storage. Prefers shade as a sapling
8	Khejdi	*Prosopis cineraria*	Late May till late August	2-4y	2700	46-80	14	Pods should be collected when dark brown
9	Desi Babool	*Vachellia nilotica*	June	2-3 y.	700-1100	80	30	Pods should be collected when dark brown and for better results grown straight in bags
10	Roheda	*Tecomella undulata*	July	1y	1000	-	82	Very light seeds, care must be taken at time of sowing and transplanting

S. N.	Common Name	Scientific Name	Seed Collection Time	Viability	No. of seeds per 100 gm	Germination Percent	Germination Period (Days)	Notes on Harvesting Seed/ Germination
11	Sonjna	*Moringa oleifera*	June onwards	1-6m	800-900	86	20-30	Pods to be collected when light brown and crackling.
12	Bael Patra	*Aegle marmelos*	June or July	1-6m	680-890	40	21	Fruit stays on the tree for a long time. To be collected when yellow, separated from edible parts and washed thoroughly to remove all the sugar.
13	Doodhi	*Wrightia tinctoria*	June - July	6m	3100	60	10-15	Pods stay on the tree for almost a year and should be collected when brown. To separate seeds, pods should be dried in a paper bag in full sun.

S. N.	Common Name	Scientific Name	Seed Collection Time	Viability	No. of seeds per 100 gm	Germination Percent	Germination Period (Days)	Notes on Harvesting Seed/ Germination
14	Kusum	*Schleichera oleosa*	June – August	6m	180	50-80	10-90	Seed to be collected when dark brown. Needs acid treatment or mechanical scarification for hard seeds.
15	Kaim	*Mitragyna parvifolia*	August-September	3m	1200-1500	20	25	Fruits contain many light seeds, to be collected when dry and dark brown/blackish
16	Palash	*Butea monosperma*	July-August	1y	990-1480	73-90	15	Pods are collected when they are light brown.

S. N.	Common Name	Scientific Name	Seed Collection Time	Viability	No. of seeds per 100 gm	Germination Percent	Germination Period (Days)	Notes on Harvesting Seed/ Germination
17	Dhau	*Anogeissus pendula*	September end – February	6m	9640	5	15	Light seeds can be collected from the stream beds or trees. Collected when dark brown. Should be sown in soil with high organic matter and prefers shade as a sapling
18	Kanju	*Holoptelea intergrifolia*	April-May	6m	2700	60	10	Light brown seeds should be collected as soon as possible
19	Jhinjheri	*Bauhinia racemosa*	Late November - Few upcoming months	2y	644-790	60-95	21	Dark brown pods should be collected.
20	Siris (White)	*Albizia lebbeck*	December – March	2-3y	800-1300	60-94	60	Pods to be collected when light brown.

S. N.	Common Name	Scientific Name	Seed Collection Time	Viability	No. of seeds per 100 gm	Germination Percent	Germination Period (Days)	Notes on Harvesting Seed/ Germination
21	Pilkhan	*Ficus virens*	July to September	9m	400-550	60-80	18-30	Seeds need to be collected when brown and dried before sowing
22	Barna	*Crateva religiosa*	September	2m	N/A	80	30	Fruit to be collected when dark red
23	Sonjna (Wild)	*Moringa concanensis*	February-March	3m	800-900	70	20	Pods to be collected when brown and crackling.
24	Kumttha	*Senegalia senegal*	May-June	1y	820-1090	56	30	Pods turn dark brown on the tree and can be collected at once. Can be grown directly in bags for best results.
25	Anjeeri	*Ficus Palmata*	May-June	3m	90-110	50	25	Collected when light brown in colour and depulped

S. N.	Common Name	Scientific Name	Seed Collection Time	Viability	No. of seeds per 100 gm	Germination Percent	Germination Period (Days)	Notes on Harvesting Seed/ Germination
36	Semal	*Bombax ceiba*	May	1-2y	2143-3850	14-75	25	Care to be taken because seeds are dispersed through air in cotton balls. Pods to be collected when light brown
37	Khair	*Senegalia catechu*	August-September	6-12m	4000	60-80	30	Pods to be collected when light brown in colour
28	Gondi	*Cordia gharaf*	January-February	6-12m	1500	40	20-40	Berries should be collected when dark red
29	Kala Indrajao	*Wrightia arborea*	April-December	6m	N/A	45	40	Twin pods attached. Should be kept in paper bags in full sunlight to separate seeds
30	Indian Coral Tree	*Erythrina stricta*	May-June	2-3y	600	54-82	10-35	Seed is brown kidney shaped with red or purple seeds in them.

S. N.	Common Name	Scientific Name	Seed Collection Time	Viability	No. of seeds per 100 gm	Germination Percent	Germination Period (Days)	Notes on Harvesting Seed/ Germination
31	Kulu	*Sterculia urens*	April-May	1-2y	540	88	15-20	Seeds are dark brown or maroon when ripe for collection
32	Falsa	*Grewia asiatica*	May-June	3m	150-200	44	55	Berries should be collected when deep red
33	Chamrod	*Ehretia laevis*	April-May	3m	300	50	30	Seeds should be collected when light orange
34	Gamhar	*Gmelina arborea*	July-August	6-12m	250-260	43-85	10-15	Seed to be collected when brown
35	Harsingar	*Nyctanthes arbor-tristis*	January-February	6m	900	60	20	Berries should be collected when dark green and brown.

S. N.	Common Name	Scientific Name	Seed Collection Time	Viability	No. of seeds per 100 gm	Germination Percent	Germination Period (Days)	Notes on Harvesting Seed/ Germination
36	Lasoda	*Cordia dichotoma*	July-Aug	6m	600	20-25	12	Seedlings should be potted up as soon as the first pair of true leaves have formed. Seeds to be collected when light brown/ yellowish
37	Kadipatta	*Murraya koenigii*	May-July	6m	125-250	60	15	seeds should be collected when black
38	Jhau	*Tamarix diocia*	N/A	1week	29000 propagations by cuttings mainly	..	2-3	Short cuttings do well after initial heavy watering
39	Tamarind	*Tamarindus indica*	November-December	1y	180	86	15-20	Pods should be collected when dark brown and dry
40	Jamun	*Syzygium cumini*	July-September	1week	120	90	30	Fruit should be collected when deep red

S. N.	Common Name	Scientific Name	Seed Collection Time	Viability	No. of seeds per 100 gm	Germination Percent	Germination Period (Days)	Notes on Harvesting Seed/ Germination
41	Khajur	*Phoenix sylvestris*	July	6m	220-300	55	40	Seeds can be collected when they are orange or deep yellow in colour
42	Amla	*Phyllanthus emblica*	July-September	1-6m	6800-8900	30	30	When they become dull greenish-yellow from light green
43	Hingot	*Balanites aegyptiaca*	Mar-Apr	2y	20-30	10	30	Ingested seeds do the best otherwise the seed needs a lot of treatment to break the coat
44	Banyan/ Bargad	*Ficus bengalensis*	November to January	6m	85	23	40	Seeds collected when berries are deep red in colour
45	Baheda	*Terminalia bellirica*	Dec-Jan	1y	40-50	86-100	30-60	Collected when light brown in color
46	Jhadber	*Ziziphus nummularia*	December-February	1-2 y	300-400 nuts or 4000 seeds	30	7	Berries should be collected when deep red or brown

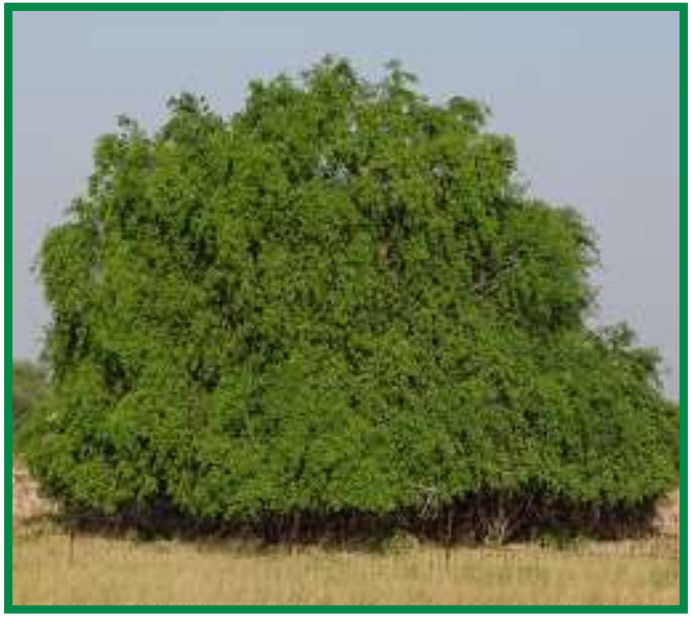
S. N.	Common Name	Scientific Name	Seed Collection Time	Viability	No. of seeds per 100 gm	Germination Percent	Germination Period (Days)	Notes on Harvesting Seed/ Germination
47	Hins	*Capparis sepiaria*	May-June	3m	190	5	40	Collected straight from the plant, shows vivipary.
48	Jungli Karonda	*Carissa spinarum*	January-March	6m	200	15	40	Should be collected over the winter and only the brown seed should be plucked. The plant fruits sporadically so constant collection is required
49	Goyakhair	*Dichrostachys cinerea*	May-September	6m	450	30	25	Pods should be collected when dark brown
50	Gangeti	*Grewia tenax*	December-January	3m	600	50	25	Seeds should be picked when orange or brown in colour
51	Vajradanti	*Barleria prionitis*	March-April	1week	propagation by cuttings mainly	..	..	Cuttings with root nodules have great chance of success

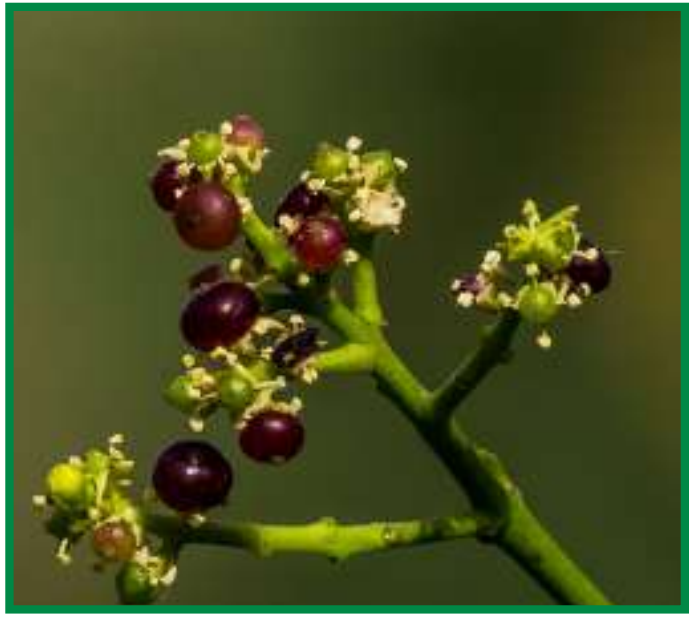
S. N.	Common Name	Scientific Name	Seed Collection Time	Viability	No. of seeds per 100 gm	Germination Percent	Germination Period (Days)	Notes on Harvesting Seed/ Germination
52	Adusa	*Justicia adhatoda*	June-August	1m	propagation by cuttings mainly	..	..	Cuttings kept in shade and well moist soil do well.
53	Ashwagandha	*Withania somnifera*	January-March	3m	3000	50	25	Seeds to be collected right after flowering when red and stored right away
54	Safed Aak	*Calotropis gigantea*	August-September	3m	N/A	50	25	Seeds inside a green pod with cotton fibre. Should be collected of the plant when dark green or brown and shrivelled.
55	Aak	*Calotropis procera*	August-September	3m	N/A	25	25	Seeds inside a green pod with cotton fibre. Should be collected of the plant when dark green or brown and shrivelled.

S. N.	Common Name	Scientific Name	Seed Collection Time	Viability	No. of seeds per 100 gm	Germination Percent	Germination Period (Days)	Notes on Harvesting Seed/ Germination
56	Chitrak	*Plumbago zeylanica*	April	6m	N/A	40	45	
57	Blackberry (Jackal Jujube)	*Ziziphus oenoplia*	November-March	6m	300	40	60	Berries should be collected when black and dry
58	Ratti, Rosary Pea	*Abrus precatorius*	November-April	2y	115	70	30	Red seeds collected with care due to high toxicity
59	Satavari	*Asparagus racemosus*	January-February	1y	550	60	25	To be collected when deep red
60	Giloy	*Tinospora cordifolia*	N/A		propagation by cuttings mainly	..	..	Cuttings in monsoon can be multiplied quite easily.

Ber *(Ziziphus mauritiana)*

Peelu *(Salvadora persica)*

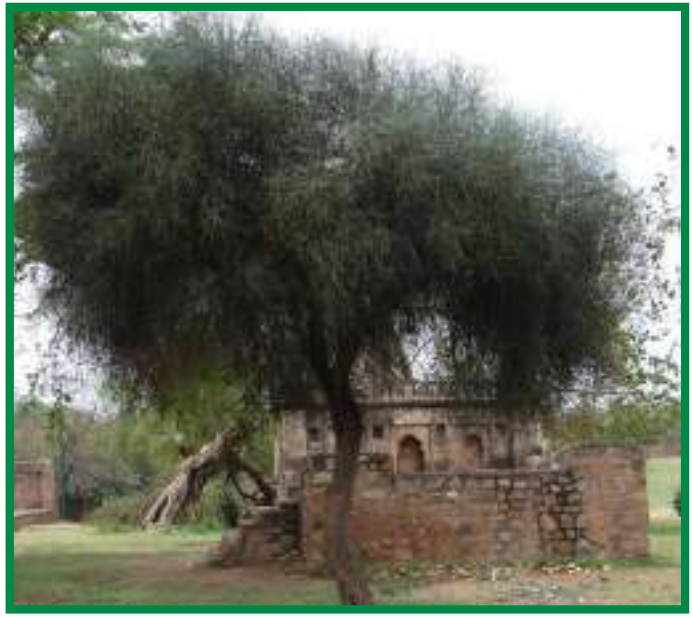




Amaltas *(Cassia fistula)*

Shahtoot (*Moras alba)*

Kareel *(Capparis decidua)*



Bishtendu *(Diospyros cordifolia)*

Khejdi *(Prosopis cineraria)*

Desi Babool *(Vachellia nilotica)*

Roheda *(Tecomella undulata)*

Sonjna *(Moringa oleifera)*

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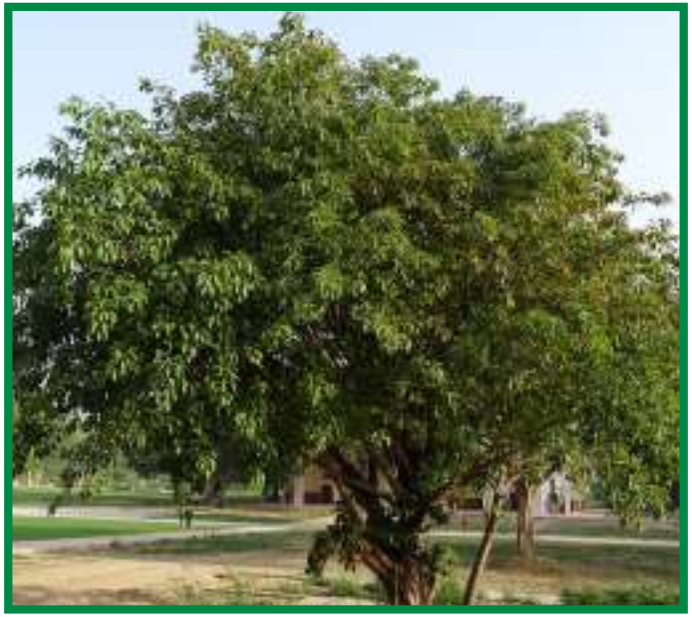
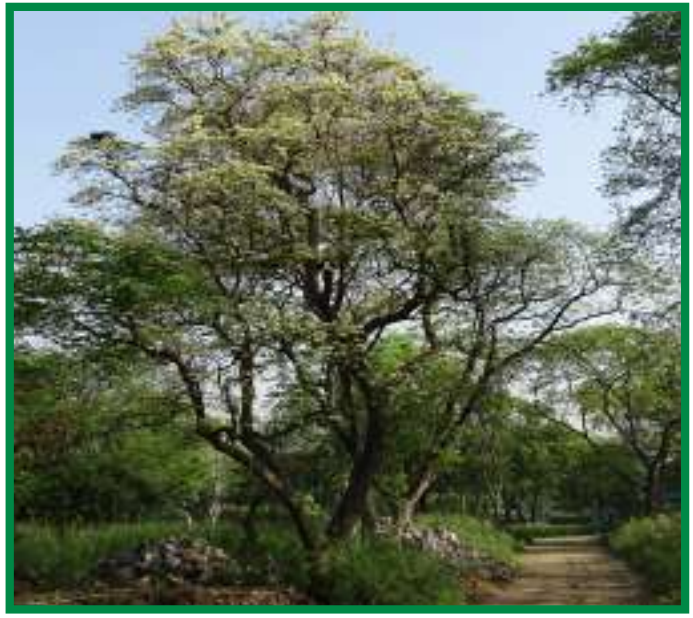
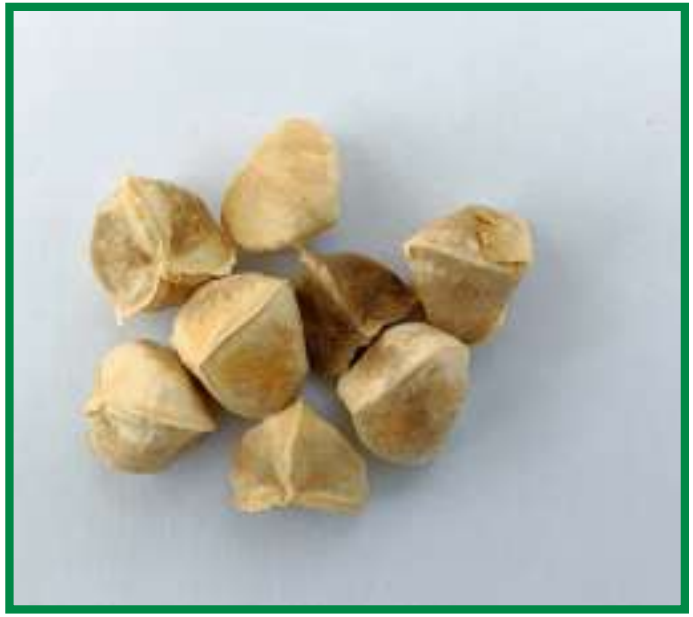
Pilkhan *(Ficus virens)*



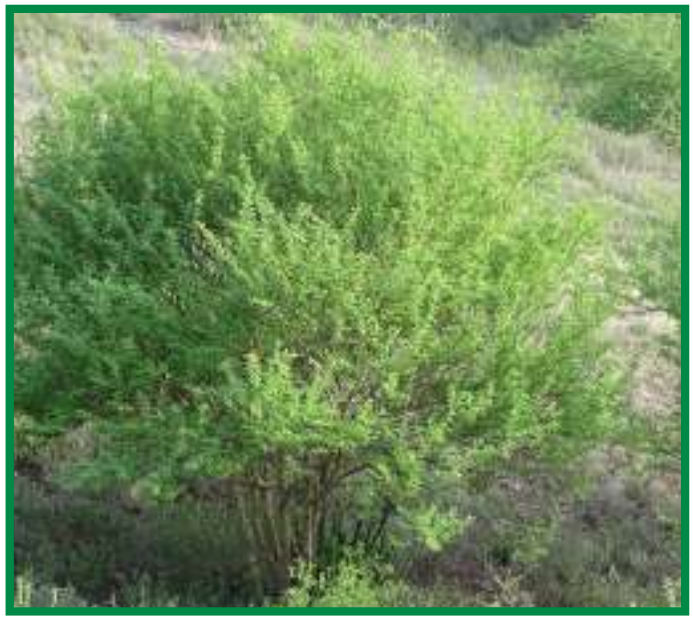
Barna *(Crateva religiosa)*



Wild Sonjhna *(Moringa concanensis)*



Kumttha *(Senegalia Senegal)*



Anjeeri *(Ficus Palmata)*

Semal *(Bombax ceiba)*

Khair *(Senegalia catechu)*

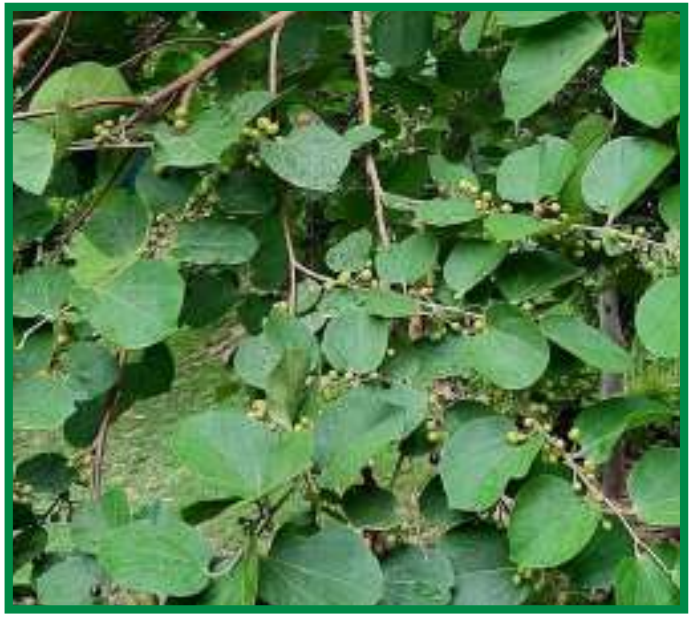
Gondi *(Cordia gharaf)*

Kala Indrajao *(Wrightia arborea)*

Indian Coral Tree *(Erythrina stricta)*

Kulu *(Sterculia urens)*

Falsa *(Grewia asiatica)*



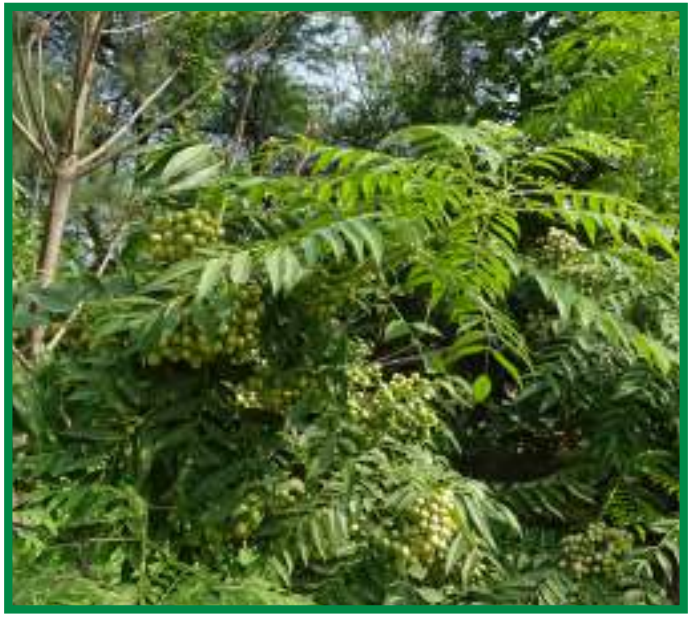
Chamrod

Gamhar *(Gmelina arborea)*

Harshingar *(Nyctanthes arbor-tristis)*

Lasoda *(Cordia dichotoma)*

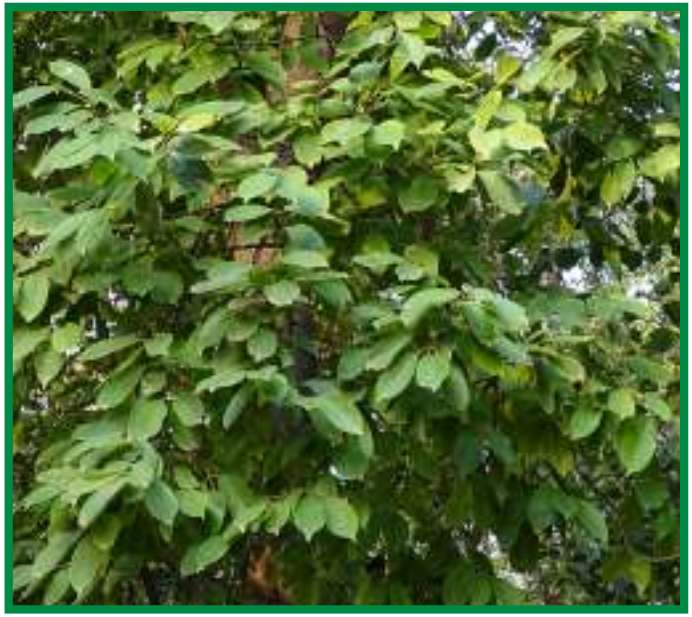
Kadipatta *(Murraya koenigii)*



Jhau *(Tamarix diocia)*

Tamrind *(Tamarindus indica)*

Jamun *(Syzygium cumini)*



Khajur *(Phoenix sylvestris)*

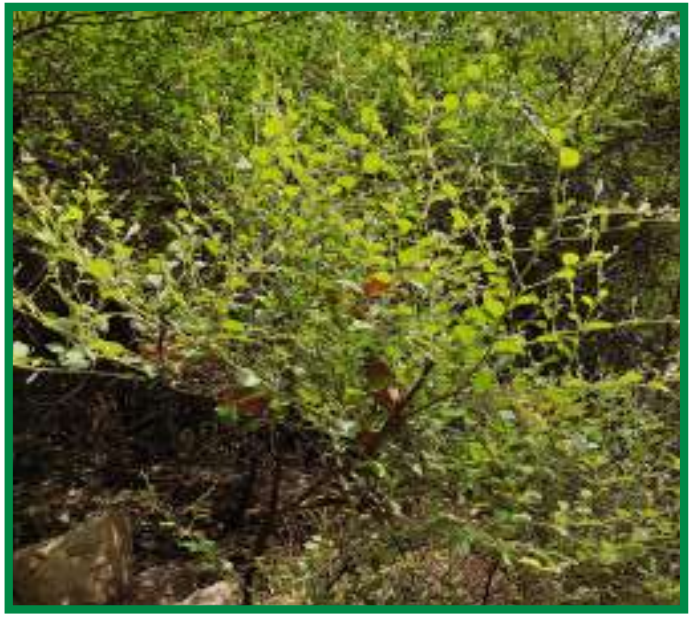
Amla *(Phyllanthus emblica)*

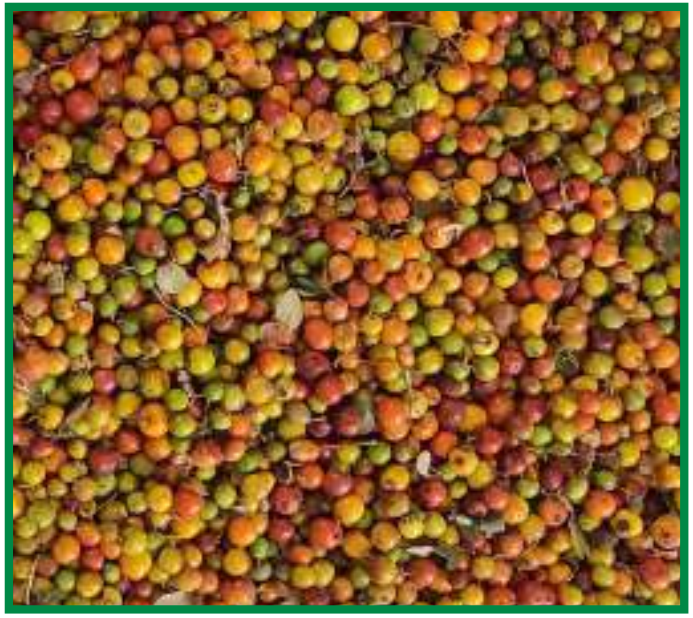
Hingot *(Balanites aegyptiaca)*

Baheda *(Terminalia bellirica)*

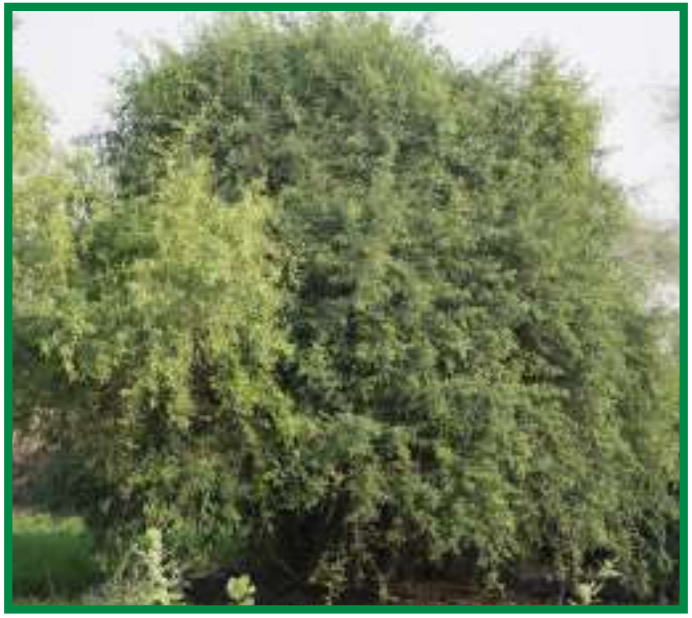
Banyan or Bargad *(Ficus bengalensis)*

Jhadber *(Ziziphus nummularia)*



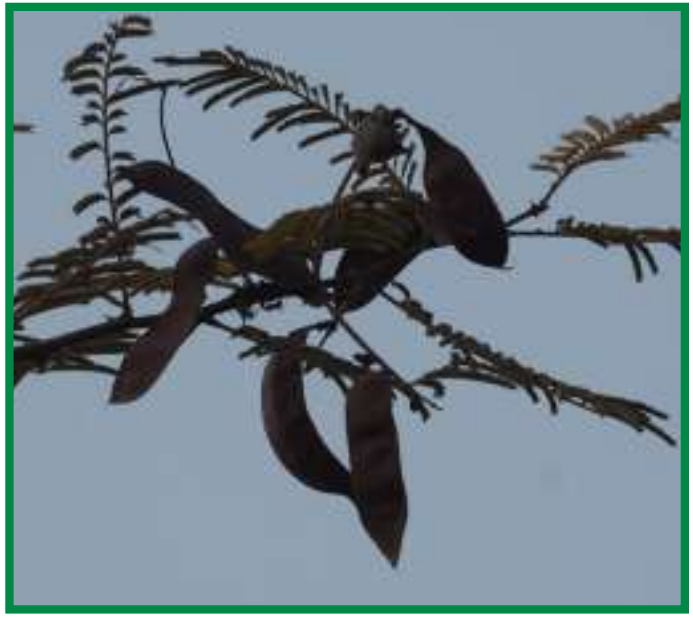


Hins or Kanthari *(Capparis sepiaria)*

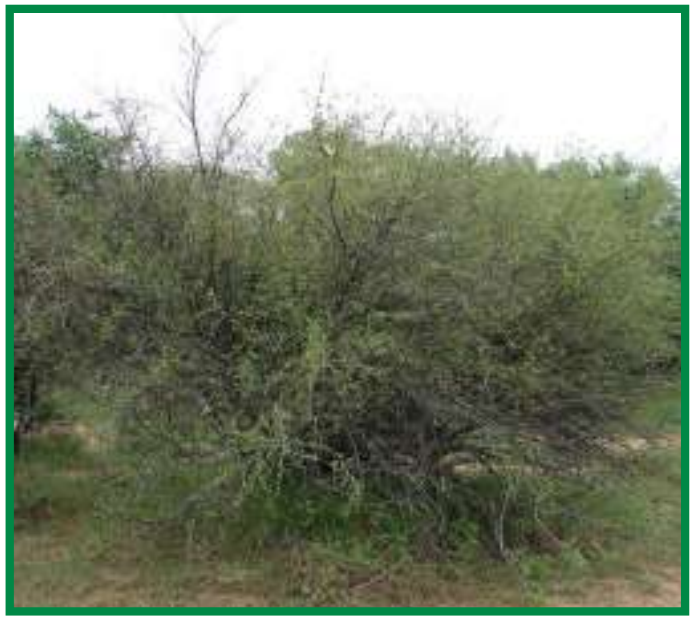


Jungli Karonda *(Carrisa spinarum)*

Goyakhair *(Dichrostachys cinerea)*

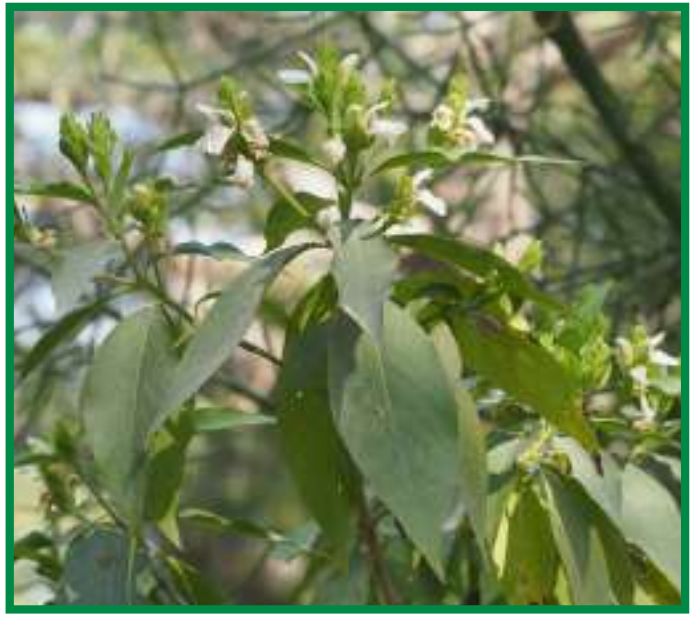


Gangeti *(Grewia tenax)*



Vajradanti *(Barleria prionitis)*

Adusa *(Justicia adhatoda)*

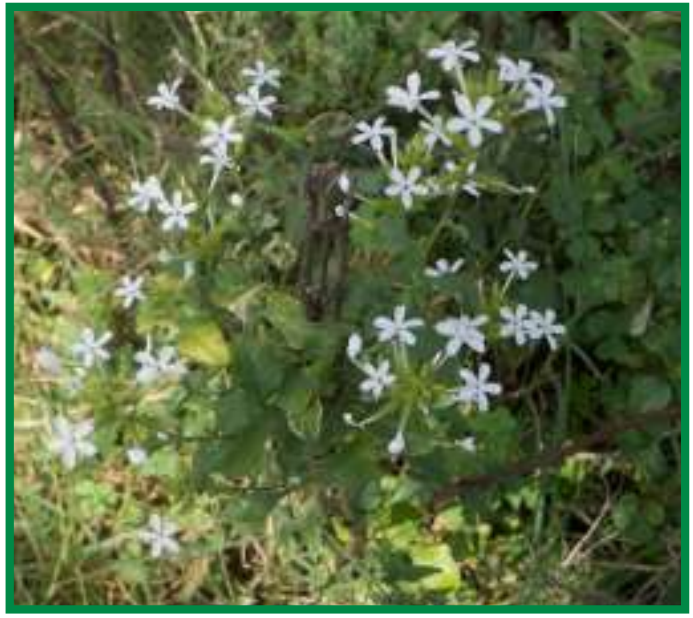


Ashwagandha *(Withania somnifera)*

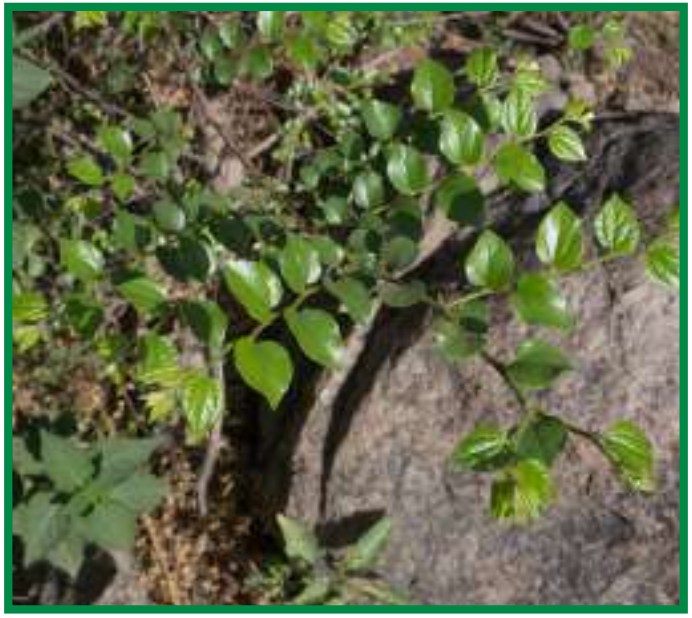
Safed Aak *(Calotropis gigantea)*

Aak *(Calotropis procera)*

Chitrak *(Plumbago zeylanica)*



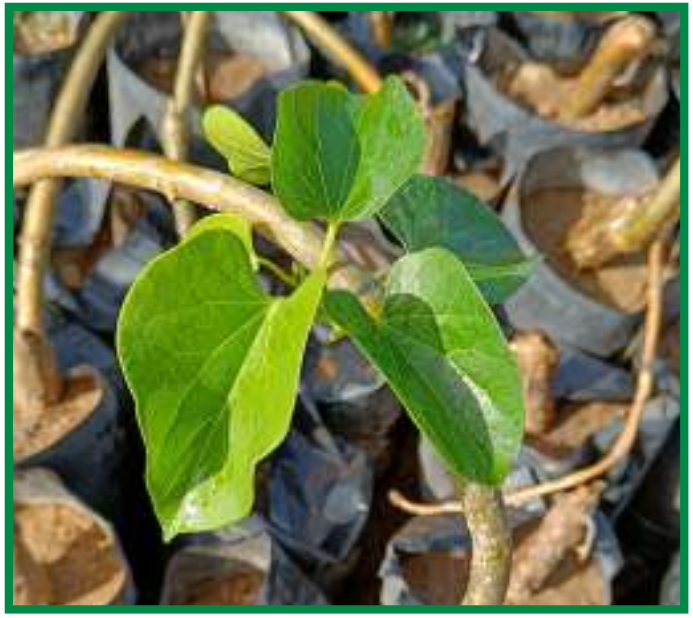
Blackberry (Jungle Jujube) *(Ziziphus oenoplia)*



Ratti or Rosary Pea *(Arbus precatorius)*

Satavari *(Asparagus racemosus)*

Giloy *(Tinospora cordifolia)*



Details of Seed Source

Sr. No.	Common Name	Scientific Name	Hindi Name	GPS Coordinate	Location (Area, Region, Division)	Protection Status	Health of Tree	Age (Estimate)

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Observation on Phenology

Sr. No.	Common Name	Scientific Name	Hindi Name	New Leaf Time	Fruiting Time	Flowering Time	Seed Collection Time	Comments

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Sr. No.	Common Name	Scientific Name	Hindi Name	New Leaf Time	Fruiting Time	Flowering Time	Seed Collection Time	Comments

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Seed Collection Details

Date	Species	Amount of seed collected

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