

Biodiversity of the Indian Desert and it's Value

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Abstract

The state of Rajasthan is situated between 23°3' and 30°12' N latitude and 69°30' and 78°17' E longitude . The total land area of the state is about 3,24,239 km² , out of which about 1,98,100 km² is arid and the rest semi arid. The physical features are characterized mainly by the Aravallis and to the some extent by the vindhyan formation, and the Deccan trap. A major portion of western Rajasthan has desert soils and sandy plains. Sand dunes occupy a greater part of western Rajasthan (1,20, 983 km²). The soils of the desert plains are loamy sand to loam and the eastern part has alluvial soil which supports good forests and agricultural crop. Occurrence of saline soils with pH up to 9.0 is a common feature in the sandy areas of Rajasthan. The average annual rainfall in the state is 525-675 mm, and the annual precipitation in different tracts of Rajasthan varies from 13 mm to 1766 mm. Out of the total area , forests cover only about 37,638 km² and are rich in biodiversity. Rajasthan is rich in biodiversity which has a great economic value. Characterization of different plant species of economic value was undertaken. (Table 1-6).

INTRODUCTION

Out of the total land area of Rajasthan , forest covers only about 37,638 km², i.e. 11 %. This forest includes roughly 7 % of depleted and denuded forests. Biodiversity of Rajasthan is related with the Aravalli hills. *Anogeissus pendula* Edgew. forests cover more than half of the total forest area in the state. These forests occur on a variety of rock formations on the Aravalli hills. *A. pendula* Edgew. is also found in the southern region of the Vindhyan formations. It is able to grow on stony, impoverished and shallow soils, and also on a range of sandy loams to clay loam. *A. pendula* Edgew forms pure stands. It is commonly associated with *Diospyros melanoxylon* Roxb., *Acacia leucophloea* Willd., *Bauhinia racemosa* Lam. And *Wrightia tinctoria* R. Br. In parts of the Jaipur, Ajmer and Jodhpur districts *Acacia Senegal* Willd. is common. On the upper slopes , the main species are replaced by *Sterculia urens* Roxb., *Boswellia serrata* Roxb. and *Lannea coromandelica* (Houtt.) Herrill. and along the foothills by *Butea monosperma* (Lam.) Taub. The other species found are *Dichrostachys cinerea* (L.) Wt. & Arn., *Balanites aegyptiaca* (L.) Del., *Maytens emerginata* (Willd.) D. Hou., *Rhus mysurensis* Heyne, *Securinga leucopyrus* (Willd.) Muell. Arg., *Grewia flavescens* Jurs., *G. tenas* (Forsk.) Fiori and *Lycium barbarum* Linn. (Roy and Kumar , 1987). *Acacia catechu* Willd. forests are common in the south-eastern regions. e.g. Baran, Jhalawar, Kota, Tonk , Chittorgarh and Alwar. The area under this type is roughly 3 % of the total forest area. (Roy and Kumar , 1995; Kumar and Roy 1996).

The Rajasthan desert has extensive areas of saline soil which can be effectively utilized for biomass production. Notable among the species, including halopytes, which can be raised in this area include *Tamarix troupii* Hole, *Acacia nilotica* (L.) Del., *Calotropis procera* (Ait.) R.Br., *Capparis deciduas* (Forsk.) Edgew, *Salvadora oleoides* Decne., *Prosopis chilensis*

(Molina) Stuntz. These can be raised on soils with lower levels of salinity. Some of the grasses which can be grown are *Aeluropus logopoides* (L.) Trin. ex Thw., *Dactyloctenium aegyptium* (L.) P. Beauv., *Eleusine compressa* (Forsk.) Ascheros. and Schweing and *Eragrostis ciliaris* (L.) R.Br. (Kumar , 1987.)

The vast sandy tracts which are distributed in the Western and Northern plains of the state, form the dunes and the plain. The dunes are of two type - the embryonic, and the stabilized ones. There is no vegetation on the embryonic dunes except some ephemerals like *Gisekia pharnaceoides*, *Euphorbia prostrata*, *Mollugo cerviana*, *Polycarpaea corymbosa* and others which are the pioneers. When the embryonic dunes are gradually stabilized due to the growth of sand binders like *Leptadenia pyrotechnica*, *Calotropis procera*, *Aerva tomentosa*, *Saccharam munja*, and others , they provide a suitable habitat for the growth of some annual grasses, e.g. species of *Eragrostis*, *Aristida*, etc. Plant species like *Convolvulus*, *Heliotropium*, *Indigofera*, *Tephrosia*, *Polygala*, and perennials like *Echinops echinatus*, *Crotalaria medicagenia* , and Shrub like *Acacia jacqumontii*. Besides this *Trianthema*, *Chenopodium*, *Salsol* and *Suaeda* plants are very common in saline regions of Rajasthan.

Material and Methods

The plant species were collected from different sites of the state like the Ajmer, Churu, Jhunjhunu, Dausa, Sikar, and mainly the Jaipur district. Identification of these plant species was done using standard monographs and their local flora (Sharma , 1976; Bhandari, 1978). The survey of these sites was carried out over a period of two years (1999-2000). The plant specimens have been deposited in the herbarium of the Botany Department, University of Rajasthan, Jaipur.

Observation

The following plant species have been recorded from different area of the state in different seasons. This plant biodiversity has lots of economic value. Some of the plants are listed in the following table. They include different categories like plants yielding Fibers, Tannins, Dyes, Gum and Resins, Extraction & Distillation products, plants for lac worm hosts, Plant for Silkworm hosts, Biri leaves, Soap Substitutes etc.

A. Trees:

Acacia leucophloea (Roxb.) Willd. ; *Acacia nilotica* (Linn.) Willd. ex Del. ; *Acacia senegal* (Linn.) Willd. ; *Acacia tortilis* (Forsk.) Hayne.(Figure 1); *Azadirachta indica* A. Juss.; *Ailanthus excelsa* Roxb.; *Balanites aegyptiaca* (Linn.) Delile.; *Dichrostachys cinerea* (Linn.) Wight. et Arn.; *Ficus benghalensis* Linn.; *Ficus religiosa* Linn.; *Holoptelea integrifolia* Planch.; *Prosopis cineraria* (Linn.) Druce.; *Prosopis juliflora* (Swartz.) DC. ; *Tecomella undulata* (Sm.) Seeman.; *Ziziphus mauritiana* Lamk.; *Maytenus emarginata* (Willd.) Ding-Hou. *Phoenix sylvestris* (Linn.) Roxb.; *Ricinus communis* Linn.; *Terminalia alata* Heyne ; *Terminalia arjuna* (Roxb.) Wight. & Ara.; *Cassia fistula* Linn.; *Cassia auriculata* Linn; . *Tamarix aphylla* (L.) Karst.; *Pithecellobium dulce* Benth.; *Acacia catechu* Willd.; *Zizyphus glaberrima* Santapau.; *Terminalia bellirica* Roxb.; *Emblica officinalis* Gaertn.; *Anogeissus pendula* Edgew.; *Anogeissus latifolia* Wall.; *Prosopis cineraria* (L.) Druce.; *Garuga pinnata* Roxb.;

Madhuca indica Gmel.; *Pongamia pinnata* (L.) Pierre.; *Salvadora oleoides* Decne.; *Salvadora persica* Linn.; *Jatropha curcas* Linn.; *Balanites aegyptiaca* (L.) Delile.; *Sapindus emarginatus* Vahl.; *Mimusops elengi* Linn.; *Aegle marmelos* (L.) Correa.; *Bauhinia racemosa* Lamk.; *Boswellia serrata* Roxb.; *Bombax ceiba* Linn.; *Buchnanania latifolia* Roxb.; *Butea monosperma* (Lamk.) Taub.; *Leucaena leucocephala* (Lam.) de Wit.; *Lannea coromandelica* (Houtt.) Merril.; *Moringa oleifera* Lam.; *Mangifera indica* Linn.; *Miliusa tomentosa* (Roxb.) J. Sinclair; *Pterocarpus marsupium* Roxb.; *Sterculia urens* Roxb.; *Nyctanthes arbortristis* Linn.; *Wrightia tinctoria* R.Br.; *Morinda tinctoria* Roxb.; *Helicteres isora* Linn.; *Cordia gharf* (Farsk.) Her. & Asch.; *Erythrina suberosa* Roxb.; *Phoenix sylvestre* Roxb.; *Cordia oblique* Willd. *Ficus religiosa* Linn.; *Morus alba* Linn.; *Diospyros melanoxylon* Roxb.; *Diospyros tomentosa* Roxb.; *Diospyros montana* Roxb.; *Santalum album* Linn.

B. Shrubs:

Carissa carandas Linn; *Punica granatum* Linn.; *Lawsonia inermis* Linn.; *Rhus mysurensis* Heyne.; *Mallotus philiphinensis* Muell. – Arg.; *Capparis deciduas* (Forsk.) Edgew.; *Abutilon indicum* (Linn.) Sweet.; *Sida cordifolia* Linn. ; *Waltheria indica* Linn.; *Commiphara wightii* (Arn.) Bhandari.; *Hibiscus ovalifolius* Vahl.; *Ziziphus nummularia* (Burm.f.) Wt.et Arn.; *Acacia jacqumontii* Benth.; *Crotalaria burhia* Buch.-Ham. ex Benth.; *Grewia tenax* (Forsk.) Fiori.; *Crotalaria medicaginia* Lamk.; *Verbesina encelioides* (Cav.) Benth. & Hook.; *Xanthium strumarium* Linn.; *Calotropis procera* (Ait.) R.Br.; *Leptadenia pyrotechnica* (Forsk.) Decne.; *Sericostoma pauciflorum* Stocks.; *Withania somnifera* (Linn.) Dunal.; *Lantana indica* Roxb.; *Aerva tomentosa* (Burm. f.) Juss.; *Salsola baryosoma* (R.et S.) Dandy.; *Suaeda maritima* (Linn.) Dumort.

C. Perennial herbs :

Tephrosia hamiltonii Drumm.; *Tephrosia purpurea* (Linn.) Pers.; *Farsetia hamiltonii* Royle.; *Indigofera linnaei* Ali.; *Trianthema portulacastrum* Linn.; *Zaleyia govindia* (Buch-Ham. ex G. Don) N.C. Nair.; *Borreria articularis* (Linn.) F.N. Will.; *Echinops echinatus* Roxb.; *Launaea resedifolia* (Linn.) Druce.; *Launaea procumbens* (Roxb.) Rammmya et Rajgopal.; *Oligochaeta ramose* (Roxb.) Wagenitz.; *Pulicaria crispa* Sch.-Bip.; *Catharanthus roseus* (Linn.) Don.; *Convolvulus microphyllous* Sieb. ex Spreng.; *Datura metal* Linn. ; *Solanum nigrum* Linn.; *Solanum surattense* Burm.; *Lepidagathis trinervis* Wall. ex Nees.(Figure, 2); *Boerhavia diffusa* Linn.; *Achyranthes aspera* Linn.; *Amaranthus caudatus* Linn.; *Pupalia lappacea* (Linn.) Juss.; *Croton bonplandianum* Baill.; *Euphorbia hirta* Linn.

D. Annual herbs :

Argemone mexicana Linn.; *Fumaria indica* (Haussk.) Pugsley.; *Sisymbrium irio* Linn.; *Portulaca oleracea* Linn.; *Portulaca suffruticosa* Wt.; *Alysicarpus monilifer* DC.; *Medicago laciniata* (Linn.) Mill.; *Melilotus indica* All.; *Fagonia cretica* Linn.; *Trigonella polycerata* Linn.; *Trianthema triquetra* Rottl. ex Willd.; *Acanthospermum hispidum* DC. (Figure 4); *Artemisia scoparia* Waldst et Kit.; *Gnaphalium indicum* Linn.; *Pulicaria angustifolia* DC.; *Sonchus asper* (Linn.) Gars.; *Vernonia cinerea* (Linn.) Less.; *Anagallis arvensis* Linn.; *Arnebia hispidissima* (Lehm.) DC.; *Heliotropium ellipticum* Ledeb. (Figure 3); *Heliotropium marifolium* Retz.; *Heliotropium subulatum* Hochst. ex DC.; *Datura innoxia* Mill.; *Leucas aspera* (Willd.) Spreng.; *Gomphrena celosiodies* Mart.; *Indigofera cordifolia* Heyne.; *Indigofera hochstetteri* Baker.; *Tephrosia*

strigosa (Dalz.) Sant.; *Ocimum canum* Sims.; *Chenopodium album* Linn.;
Chenopodium murale Linn.; *Phyllanthus asperulatus* Hutch.

E. Ephemerals :

Cleome gynandra Linn.; *Cleome viscosa* Linn.; *Polygala erioptera* DC.; *Polygala irregularis* Boiss.; *Indigofera astragalina* DC.; *Polycarpaea corymbosa* (Linn.) Lamk.; *Sida ovata* Forst.; *Corchorus tridens* Linn.; *Triumfetta pentandra* A.Rich.; *Tribulus terrestris* Linn.; *Cassia tora* Linn. (Figure 6); *Cassia occidentalis* Linn.; *Alysicarpus vaginalis* (Linn.) DC.; *Indigofera linifolia* (Linn.) Retz.; *Indigofera sessiliflora* DC.; *Gisekia pharnaceoides* Linn.; *Mollugo cerviana* (Linn.) Ser. (Figure 7); *Mollugo nudicaulis* Lamk.; *Bidens biternata* (Lour.) Merr. & Sherff.; *Blainvillea acmella* (Linn.) Philipson.; *Trichodesma indicum* R.Br.; *Evolvulus alsinoides* Linn.; *Physalis minima* Linn.; *Pedaliium murex* Linn.; *Sesamum indicum* Linn.; *Martynia annua* Linn.; *Peristrophe bicalyculata* (Retz.) Nees.; *Rostellularia procumbens* (Linn.) Ness.; *Anisomeles indica* (Linn.) Ktze. (Figure 5); *Amaranthus spinosus* Linn.; *Digera muricata* (Linn.) Mart.; *Euphorbia prostrata* Ait.; *Commelina benghalensis* Linn.; *Commelina forskalaei* Vahl.

F. Climbers and twinnners:

Cocculus pendulus (Forst.) Diels.; *Celastrus paniculata* Willd.; *Tinospora cordifolia* (Willd.) Miers.; *Blastania fimbristipula* (Fensl.) Kotschy et Peyr.; *Citrullus colocynthis* (Linn.) Schrad.(Figure 8); *Cucumis callosus* (Rottl.) Cogn.; *Mukia maderaspatana* (Linn.) M. Roem.; *Pergularia daemia* (Forsk.) Chiov.; *Ipomoea eriocarpa* R.Br.; *Ipomoea pes-tigridis* Linn.

G. Grasses :

Bulbostylis barbata (Rottb.) Kunth.; *Cyperus arenarius* Retz.; *Cyperus bulbosus* Vahl.; *Cyperus triceps* (Rottb.) Endl.; *Aristida funiculata* Trin. et Rupr.; *Brachiaria ramose* (Linn.) Stapf .; *Brachiaria reptans* (Linn.) Gardener et Hubb.; *Cenchrus biflorus* Roxb.; *Cenchrus ciliaris* Linn.(Figure, 9); *Cenchrus pennisetiformis* Hochst. et Steud.; *Chloris virgata* Sw.; *Dactyloctenium indicum* Boiss.; *Vetiveria zizanioides* (L.) Nash.; *Typha elephantine* Roxb.; *Eragrostis ciliaris* (Linn.) R.Br.; *Eragrostis pilosa* (Linn.) P. Beauv.; *Eragrostis tremula* Hochst. ex Steud.; *Saccharum bengalense* Retz.

Conclusion:

This report based on the survey of plant biodiversity of different sites over a period of 2 ½ years. Seasonal appearances at the sites of study were recorded (Kotia and Kumar , 2001a,c). Two hundred twelve species were listed, belonging to one hundred ten genera of flowering plants. About 50 species carry medicinal importance as can be derived from Ayurvedic literature (Jain, 1968; Jain, 1991; Kotia and Kumar, 2001b). Besides this, some of them are used as fodders and others provide edible fruits.

The rich biodiversity of Rajasthan has a great potential of plants having medicinal value. In addition to this, these plants provide tannins, oils, gums and resins, dyes, and fibers. However, their characterization is lacking. The present paper has attempted to record the data regarding the availability of plant resources which have various potential uses. The detailed investigation on the molecular and genetic characterization of these plants is necessary to have gene pool conservation. Attempts are also under way to make an in situ gene pool bank for the plants for further researches.

Table 1: Tannins yielding plants of Rajasthan

Local Name	Botanical Name	Family	Part use	Other uses
Babul	<i>Acacia nilotica</i> (L.) Willd.	Mimosaceae	Bark	Medicinally, Gum
Arunj	<i>Acacia leucophloea</i> Willd.	Mimosaceae	Bark	Fiber , Gum
Sadad	<i>Terminalia alata</i> Heyne.	Combretaceae	Bark	Medicinally
Arjuna	<i>Terminalia arjuna</i> (Roxb.) Wight. & Ara.	Combretaceae	Bark	Medicinally, silk worm host
Amaltas	<i>Cassia fistula</i> Linn.	Caesalpiniaceae	Bark	Medicinally
Anwal	<i>Cassia auriculata</i> Linn.	Caesalpiniaceae	Bark	Medicinally
Godal	<i>Lannea coromandelica</i> (Houtt.) Merrill.	Anacardiaceae	Bark	Gum, Resin, Dye
Dansara	<i>Rhus mysurensis</i> Heyne.	Anacardiaceae	Bark	Fruits edible
Farash	<i>Tamarix aphylla</i> (L.) Karst.	Tamaricaceae	Bark	Medicinally
Jangaljalbi	<i>Pithecellobium dulce</i> Benth.	Mimosaceae	Bark	Timber
Khair	<i>Acacia catechu</i> Willd.	Mimosaceae	Bark	Dye, Medicinally, Gum
Ghatbor	<i>Zizyphus glaberrima</i> Santapau.	Rhamnaceae	Fruit	Fruit edible
Baheda	<i>Terminalia bellirica</i> Roxb.	Combretaceae	Fruit	Medicinally
Anonla	<i>Emblica officinalis</i> Gaertn.	Euphorbiaceae	Fruit	Fruit edible , Medicinally
Dhokra	<i>Anogeissus pendula</i> Edgew.	Combretaceae	Leaves	Medicinally
Dhawra	<i>Anogeissus latifolia</i> Wall.	Combretaceae	Leaves	Gum, Medicinally

Karaunda	<i>Carissa carandas</i> Linn.	Apocynaceae	Leaves	Fruit edible
Mehandi	<i>Lawsonia inermis</i> Linn.	Lytharaceae	Leaves	Dye, Medicinally
Khejari	<i>Prosopis cineraria</i> (L.) Druce.	Mimosaceae	Leaves	Fruit edible, Gums
Karpata	<i>Garuga pinnata</i> Roxb.	Burseraceae	Leaves	Medicinally

Table 2 : Non edible oil yielding plants of Rajasthan.

Local Name	Botanical Name	Family	Part use	Other uses
Arundi	<i>Ricinus communis</i> Linn.	Euphorbiaceae	Seed	Medicinally
Mahuwa	<i>Madhuca indica</i> Gmel.	Sapotaceae	Seed	Fruit edible
Karanj	<i>Pongamia pinnata</i> (L.) Pierre.	Fabaceae	Seed	Medicinally
Neem	<i>Azadiractha indica</i> A.Juss.	Meliaceae	Seed	Medicinally
Tumba	<i>Citrullus colocynthis</i> (L.) Schard.	Cucurbitaceae	Seed	Medicinally
Pili-hulhul	<i>Cleome viscosa</i> Linn.	Capparaceae	Seed	Medicinally
Satyanashi	<i>Argemone maxicana</i> Linn.	Papaveraceae	Seed	Medicinally
Pilu	<i>Salvadora oleoides</i> Decne.	Salvadoraceae	Seed	Medicinally
Kharajal	<i>Salvadora persica</i> Linn.	Salvadoraceae	Seed	Medicinally
Ratanjot	<i>Jatropha curcas</i> Linn.	Euphorbiaceae	Seed	Medicinally, Dye
Hingot	<i>Balanites aegyptiaca</i> (L.) Delile.	Simaroubaceae	Seed	Medicinally
Aritha	<i>Sapindus emarginatus</i> Vahl.	Sapindaceae	Seed	Soap Substitutes
Maulsiri	<i>Mimusops elengi</i> Linn.	Sapotaceae	Seed	Medicinally
Malkangini	<i>Celastrus paniculata</i> Willd.	Celastraceae	Seed	Medicinally

Table 3 : Gums & Resins yielding plants of Rajasthan.

Local Name	Botanical Name	Family	Other uses
Babul	<i>Acacia nilotica</i> (L.) Willd .	Mimosaceae	Tannin, Medicinally
Kumta	<i>Acacia senegal</i> Willd.	Mimosaceae	Tannin, Medicinally
Baonli	<i>Acacia jacquemontii</i> Benth..	Mimosaceae	Medicinally
Arunj	<i>Acacia leucophloea</i> (Roxb.) Willd.	Mimosaceae	Medicinally , Tannin
Dhawra	<i>Anogeissus latifolia</i> Wall.	Combretaceae	Taninn, Medicinally
Dhokra	<i>Anogeissus pendula</i> Edgew.	Combretaceae	Medicinally
Beel	<i>Aegle marmelos</i> (L.) Correa.	Rutaceae	Medicinally, Fruit edible
Neem	<i>Azadirachta indica</i> A.Juss.	Meliaceae	Oil, Medicinally
Jhinjha	<i>Bauhinia racemosa</i> Lamk.	Caesalpiniaceae	Medicinally
Salar	<i>Boswellia serrata</i> Roxb.	Burse raceae	Medicinally
Semal	<i>Bombax ceiba</i> Linn.	Bombacaceae	Fiber
Chironji	<i>Buchnanania latifolia</i> Roxb.	Anacardiaceae	Seed edible
Palas	<i>Butea monosperma</i> (Lamk.) Taub.	Fabaceae	Dye, Medicinally
Ganiara	<i>Cochlospermum religiosum</i> (L.) Alston.	Cochlospermaceae	Fiber, Oil
Gugal	<i>Commiphara wightii</i> (Arn.) Bhandari	Burseraceae	Medicinally
Subabool	<i>Leucaena leucocephala</i> (Lam.) de Wit.	Mimosaceae	Firewood, Charcoal
Godal	<i>Lannea coromandelica</i> (Houtt.) Merril.	Anacardiaceae	Dye, Timber, Tannin
Sainjana	<i>Moringa oleifera</i> Lam.	Caesalpiniaceae	Fruit edible
Aam	<i>Mangifera indica</i> Linn.	Anacardiaceae	Fruit edible
Umb	<i>Milium tomentosum</i> (Roxb.) J. Sinclair	Anonaceae	Timber
Bijasal	<i>Pterocarpus marsupium</i> Roxb.	Fabaceae	Medicinally
Katria	<i>Sterculia urens</i> Roxb.	Sterculiaceae	Oil, Medicinally
Rohan	<i>Soymida febrifuga</i> A. Juss.	Meliaceae	Medicinally
Khair	<i>Acacia catechu</i> Willd	Mimosaceae	Dye , Medicinally , Tannin

Table 4 : Dyes yielding plants of Rajasthan

Local Name	Botanical Name	Family	Part use	Other uses
Khair	<i>Acacia catechu</i> Willd.	Mimosaceae	Wood	Tannin, Medicinally
Sadad	<i>Terminalia alata</i> Heyne.	Combretaceae	Bark	Medicinally
Maulsiri	<i>Mimusops elengi</i> Linn.	Sapotaceae	Bark	Fruit edible
Godal	<i>Lannea coromandelica</i> (Houtt.) Merrill.	Anacardiaceae	Bark	Dye, Gum, Resine
Kamala	<i>Mallotus philiphinensis</i> Muell. – Arg.	Euphorbiaceae	Fruit	Non edible oil
Palas	<i>Butea monosperma</i> (Lamk.) Taub.	Fabaceae	Flower	Medicinally, Gum
Harsinghar	<i>Nyctanthes arbortristis</i> Linn.	Oleaceae	Flower	Essential oil
Khirni	<i>Wrightia tinctoria</i> R.Br.	Apocynaceae	Flower	Medicinally
Aal	<i>Morinda tinctoria</i> Roxb.	Rubiaceae	Root	Medicinally
Anar	<i>Punica granatum</i> Linn.	Punicaceae	Root	Fruit edible
Mehandi	<i>Lawsonia inermis</i> Linn.	Lytharaceae	Leaves	Medicinally

Table 5 : Fibers yielding plants of Rajasthan.

Local Name	Botanical Name	Family	Part use	Other uses
Palas	<i>Butea monosperma</i> (Lamk.) Taub.	Fabaceae	Bark	Dye, Medicinally
Karaya	<i>Sterculia urens</i> Roxb.	Sterculiaceae	Bark	Gum, Resin,
Mororphali	<i>Helicteres isora</i> Linn.	Sterculiaceae	Bark	Medicinally
Sandan	<i>Ougeinia oojeinesis</i> (Roxb.) Hochreut	Fabaceae	Bark	Poisonous plant
Kewra	<i>Pandanus tectorius</i> Sol. ex. Rark.	Pandanaceae	Leaves	Medicinally
Aira	<i>Typha elephantina</i> Roxb.	Typhaceae	Leaves	Wasteland colonizer
Jhinjha	<i>Bauhinia racemosa</i> Lamk.	Caesalpiniaceae	Bark	Medicinally
Aak	<i>Calotropis procera</i> (Ait.) R.Br.	Asclepiadaceae	Bark	Medicinally
Semal	<i>Bombax ceiba</i> Linn.	Bombacaceae	Fruit & Flower	Ornamental Plant
Arunj	<i>Acacia leucophloea</i> (Roxb.) Willd.	Mimosaceae	Bark	Tannins , Gum, Resin
Gondi	<i>Cordia gharf</i> (Forsk.) Her. & Asch.	Ehretiaceae	Bark	Medicinally
Gadha Palas	<i>Erythrina suberosa</i> Roxb.	Fabaceae	Bark	Medicinally
Gangan	<i>Grewia tenax</i> (Forsk.) Fiori.	Tiliaceae	Bark	Medicinally
Khimp	<i>Leptadenia pyrotechnica</i> (Forsk.) Decne.	Asclepiadaceae	Stem	Medicinally, Fruit edible
Khajur	<i>Phoenix sylvestre</i> Roxb.	Arecaceae	Leaves	Fruit edibal
Tad	<i>Borassus flabellifer</i> Linn.	Arecaceae	Fruit & Flower	Seed edible
Dudhi	<i>Wrightia tinctoria</i> R.Br.	Apocynaceae	Fruit & Flower	Medicinally
Ganiara	<i>Cochlospermum religiosum</i> (L.) Alston.	Cochlospermaceae	Fruit & Flower	Gum & Resin
Rambans	<i>Agave americana</i> Linn.	Agavaceae	Leaves	Medicinally
Senia	<i>Crotalaria burhia</i> Buch. Ham.	Fabaceae	Stem	Wasteland colonizer
Gonda	<i>Cordia oblique</i> Willd.	Ehretiaceae	Bark	Medicinally

Table 6 : Other Economically important plants of Rajasthan.

Local Name	Botanical Name	Family	Uses
Ber	<i>Zizyphus mauritiana</i> Lamk..	Rhamnaceae	Lakh worm host
Ghatbor	<i>Zizyphus glaberrima</i> Santapau.	Rhamnaceae	Lakh worm host
Palas	<i>Butea monosperma</i> (Lamk.) Taub.	Fabaceae	Lakh worm host
Pipal	<i>Ficus religiosa</i> Linn.	Moraceae	Lakh worm hosts
Shahtut	<i>Morus alba</i> Linn.	Moraceae	Silk worm host
Arjuna	<i>Terminalia arjuna</i> (Roxb.) Wight. & Arn.	Combretaceae	Silk worm host
Arundi	<i>Ricinus communis</i> Linn.	Euphorbiaceae	Silk worm host
Timru	<i>Diospyros melanoxylon</i> Roxb.	Ebenaceae	Biri leaves
Tendu	<i>Diospyros tomentosa</i> Roxb.	Ebenaceae	Biri leaves
Chikon	<i>Diospyros montana</i> Roxb.	Ebenaceae	Biri leaves
Jhinjha	<i>Bauhinia racemosa</i> Lamk.	Caesalpiniaceae	Biri leaves
Aritha	<i>Sapindus emarginatus</i> Vahl.	Sapindaceae	Soap substitutes
Hingot	<i>Balanites aegyptiaca</i> (L.) Delile.	Simaroubaceae	Soap substitutes
Khus	<i>Vetiveria zizanioides</i> (L.) Nash.	Poaceae	Extraction and Distilation products
Khair	<i>Acacia catechu</i> Willd..	Mimosaceae	Extraction and Distilation products
Mahuwa	<i>Madhuca indica</i> Gmel.	Sapotaceae	Extraction and Distilation products
Rosha	<i>Cymbopogon martini</i> (Roxb.) Wats.	Poaceae	Extraction and Distilation products
Chandan	<i>Santalum album</i> Linn.	Santalaceae	Extraction and Distilation products



Figure 1: *Acacia tortilis* (Forsk.) Hayne



Figure 2: *Lepidagathis trinervis* Wall. Ex Nees.



Figure 3: *Heliotropium ellipticum* Ledeb.



Figure 4: *Acanthosperum hispidum* DC



Figure 5: *Anisomeles indica* (Linn.) Ktze.



Figure 6: *Cassia tora* (Linn.)



Figure 7: *Mollugo cerviana* (Linn.) Ser.



Figure 8: *Citrullus colosynthis* (Linn.) Schrad



Figure 9: *Cenchrus ciliaris* (Linn.)

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