

Gum and Timber Yielding Legumes of Rajasthan

Niranjan Kumar Bavaliya
Govt Science College, Sikar (Rajasthan) 332001

Abstract:- This is an attempt to highlight twenty nine species of the gum and timber yielding legumes of the area. This indicates the present status of distribution and uses of these plants. Some discussion on their exploitation stress, dwindling position and probable remedial measures to save them is appended.

Keywords:- Legumes, Rajasthan, Gum, Timber, Uses, Distribution.

I. INTRODUCTION

The state of Rajasthan is situated in the North-West part of India, between 23⁰03' to 30⁰ 12' North latitudes and 69⁰ 30' to 78⁰17' East longitudes, and occupies an area of about 3,42,274 sq. kms. (Fig. 1).

The vegetation of Rajasthan is of deciduous tropical type, and the Leguminosae *cons.* (Fabaceae *alt.*) are the second largest and one of the most important family of flowering plants. In the area under study about 277 species belonging to 81 genera of the family are reported (Bavaliya, 1992).

Knowledge of gum and timber yielding plants is ages old viz., the period when the primitive man even before

practicing agriculture, when these were being used for his food, fodder, fuel, shelter, and medicines, etc. The Knowledge of these plants as sources of gum, timber, etc. could accrue during this period.

There is references to gum yielding plants being harnessed by ancients for amelioration of diseases. Such plants became medicinal and accordingly were referred in "Rig Veda". Many of such plants are being used in Ayurveda, a medical science of ancient origin.

During the past century, there has been an increasing interest in the study of economic plants by various workers in different parts of the country c.f. Brandis (1906), Dastur (1951), Gamble (1922), Maheshwari & Singh (1965), Pearson & Brown (1932), besides the Wealth of India 1948 - 76 and Watt 1885 - 93. Besides the studies from the State by Agrawal (1977), Gupta (1970), Nathawat & Deshpande (1960) and Singh and Pandey (1981) have brought to light various gum and timber yielding plants.

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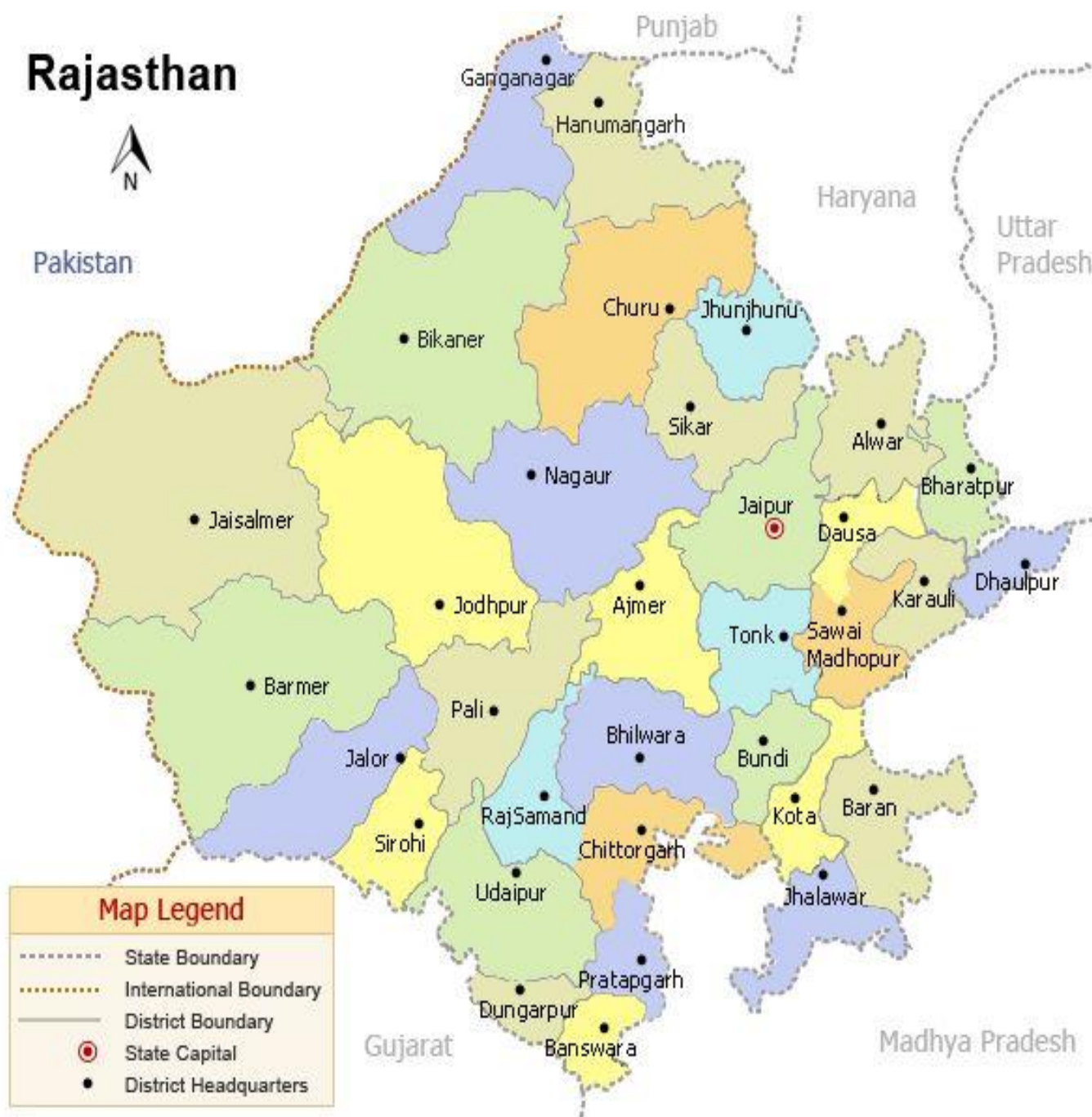


Fig. 1

II. MATERIALS AND METHODS

The plants have been enumerated here and the information about them has been gathered during field trips in and around various regions of the State. Several persons were consulted for collecting most of this information, which has been supplemented with information obtained after thorough search of literature and examination of Herbarium sheets in RUBL (The Herbarium of Botany Department, University of Rajasthan, Jaipur) and various other herbaria housing sheets from Rajasthan.

Information about these plants has been tabulated in table – 1 showing appropriate columns of gum and timber.

The plants have been arranged alphabetically in a subfamily or family, mentioning their local name(s), habit, various uses of gum and timber besides their distribution in the State.

III. DISCUSSION

Sixteen gum yielding (c.f. t.-1) plant species are found belonging to 9 genera, amongst which trees, shrubs, herbs are represented by 14, 1 and 1 species respectively. Mostly gum yielding parts are stem and branches but in *Cyamopsistetragonoloba* and *Delonixregia*, gum is obtained from seed coat and the seed. All these gum yielding plant species are valuable in jelly formation (3 spp), textile

industries (2 spp) besides being sources of edible gum (10 spp) and medicines (4 spp). Edible gum from *Acacia senegal* is very important as tonic, while gum from *Acacia leucophloea*, *Butea monosperma* and *Pterocarpus marsupium* is valuable in medicines. Insoluble gum obtained from species of *Albizias* used for jelly formation. ‘Guar-gum’ obtained from seed of *Cyamopsistetragonoloba* is used in paper and textile industries, also as an adhesive on postal stamps. The important sources of gum in this case is the seed coat. Similar to guar-gum, a gum obtained from the seed of *Delonixregia* is used in textile industries.

Twenty-one plant species belonging to 11 genera (c.f. table-1) are timber yielding plants, mostly these being trees varying in height. Timber from these are used for making agricultural implements (8 spp), furniture (10 spp), as light wood (3spp) and other implements. Most important timber yielding plant species of this area are *Acacia nilotica*, *Dalbergialatifolia*, *D. sissoo*, *Pterocarpus marsupium*, providing for furniture. Sources of secondary timber for furniture being *Prosopis cineraria*, *Tamarindusindica*. Timber from species of *Erythrina* is used for light wood implements, that from *Dalbergialatifolia* is very good hence it in thin sections for plywood, dining tables, etc.

The leguminous trees show a great variety of the structure of their wood. Distinct formation of heartwood, which is generally hard dark coloured is seen e.g. *Ougeiniaoojeinensis*, *Pterocarpus marsupium*, *Dalbergialatifolia* and *D. sissoo*, etc. The wood of *D. latifolia* is very close grained and the best for plywood. There is no heartwood in species of *Erythrina* and *Butea monosperma*.

Most of the trees and shrubs belonging Caesalpinioideae (Caesalpiniaceae) have a distinct dark coloured heartwood e. g. arboreal Bauhinias. The cavities in the wood from these plants get filled with gum-resin. The walls are lined by a stratum of thin walled secreting cells.

Most of the trees and shrubs under Mimosoideae (Mimosaceae) have a distinct dark coloured heartwood. The wood from *Acacia nilotica* is dark brown, while in *A. catechu* it is reddish brown.

Gamble (1922) has been mentioned the general character of leguminous wood is that the pores are either singly in groups or in regular concentric passages, etc. These are surrounded by loose tissue. The pores are generally scanty and rather large. He has grouped the leguminous wood into the following seven categories.

1. *Ougeniagroup* - e.g. *Ougeiniaoojeinensis*, *Tamarindusindica*, etc.
2. *Acacia group* - e.g. *Prosopis cineraria*, *Cassia fistula* & most of the Acacias.
3. *Dalbergiagroup* - e.g. *Pterocarpus marsupium* and *Dalbergias*.
4. *Bauhinia group* - e.g. *Bauhinias*, etc.
5. *Hardwickiagroup* - e.g. *Acacia nilotica*, *Dichrostachyscineria*, etc.
6. *Albiziagroup* - e.g. *Delonixregia*, and *Albizias*.
7. *Erythrinagroup* - e.g. *Butea monosperma*, *Erythras*, etc.

On the basis of utility and availability of important timbers, members of *Hardwickia* group, amongst these are important in case of rural areas. People from such areas use timber mostly from *Acacia nilotica*, a very common legume in Rajasthan. The *Dalbergia* group is important commercially as sources of timber, in this case are *Dalbergiasissoo* and *D. latifolia*. The members of *Albizia* group are important on both these accords and the source of timber mostly being *Albizialebbeck*. In some areas of Northern Rajasthan *Acacia* group is also important, main source of timber in this case being *Prosopis cineraria*. This species is regarded as the State tree as well in Rajasthan. In tribal areas of Southern Rajasthan, however, *Ougeiniaoojeinensis* extensively used for making musical instruments.

Table – 1. Gum and Timber yielding legumes of the State

S. No.	Name of Plant	Local name	Habit	Gum get From	Gum Used in	Wood used for	Distribution in the State
1	Caesalpinioideae <i>Bauhinia purpuria</i> L.	Khairwal	T	-	-	Ag. Imp.& house posts	Ganganagar, Bikaner, Jhunjhunu, Jaipur, Dausa, Bharatpur districts
2	<i>B. racemosa</i> Lamk.	Jhinjha	T	-	-	Ag. Imp.& house posts	Jhunjhunu, Sikar, Jaipur, Dausa, Tonk, Ajmer, Jodhpur, Barmer, Pali districts
3	<i>B. semla</i> Wunderlin = <i>B. retusa</i> Ham. ex Roxb.	Semla	T	St.	E & in sweetmeat	-	Jodhpur, Udaipur, Rajsamand, Jhalawar districts
4	<i>B. variegata</i> L.	Kachnar	L	-	-	Ag. Imp.& house posts	Almost throughout the State

5	<i>Cassia fistula</i> L.	Amaltas	T	-	-	Fur.	Almost throughout the State
6	<i>Delonix regia</i> (Boj. ex Hook.) Ref.	Gulmohar	T	Sd.	E &Te. Ind.	-	Almost throughout the State
7	<i>Tamarindus indica</i> L.	Imli	T	-	-	Fur.	Almost throughout the State
8	Faboideae <i>Butea monosperma</i> (Lamk.)Taub.	Tesu, Palas, Dhak, Khankhara and Chila	T	St.	M	-	Almost throughout the State
9	<i>Cyamopsis tetragonoloba</i> (L.) Taub.	Guar	H	Sd.	E, P, Te. Ind. & backing postal stamps	-	Throughout the State
10	<i>Dalbergia latifolia</i> Roxb.	Safed Shisham	T	-	-	Fur.(plywood)	Bikaner, Ajmer, Sirohi, Banswara, Jhalawar districts
11	<i>D. sissoo</i> Roxb.	Shisham	T	-	-	Fur.	Throughout the State
12	<i>Erythrina stricta</i> Roxb.	-	T	-	-	Boxes, sieve frames, etc.	Sirohi and Jhalawar districts
13	<i>E. suberosa</i> Roxb.	Dhaulidhak	T	-	-	Boxes, sieve frames, etc.	Jhunjhunu, Sirohi, Kota, Banra, Dungarpur, Banswara districts
14	<i>E. variegata</i> L. var. <i>Pangraorientalis</i> (L.) Merr.	Pangra	T	-	-	Boxes, sieve frames, etc.	Throughout the State
15	<i>Ougeinia ojeinensis</i> Sandan (Roxb.) Hochr.	Sandan	T	St.	E	Ag. Imp.	Sirohi and Bundi districts
16	<i>Pterocarpus marsupium</i> Roxb.	Bijasal	T	St.	E	Fur.	Sirohi, Udaipur, Rajsamand, Kota, Banran districts
17	Mimosoideae <i>Acacia catechu</i> (L.f.) Willd.	Khair	T	St.	E & subs-titute of <i>A. senegal</i>	Ag. Imp.	Jhunjhunu, Alwar, Tonk, Naugaur, Dungarpur, Bhilwara, Kota, Banran, Jhalawar, districts
18	<i>A.chundra</i> (Roxb. ex Rottl.) Willd.	Lal Khair	T	-	-	Ag. Imp	Ajmer, Pali, Sirohi, Udaipur, Rajsamand, Banswara, Bhilwara districts
19	<i>A.farnesiana</i> (L.) Willd.	Vilayati Babul	T	St.	E & subs-titute of <i>A. senegal</i>	-	Jaipur, Dausa, Bharatpur, Sirohi, Banswara, Bhilwara, Jhalawar districts
20	<i>A.ferruginea</i> DC.	-	T	-	-	Ag. Imp	Alwar and Chittorgarh districts
21	<i>A.jacquemonti</i> Benth.	Bu-bavalio and Baunli	S	St.	E & subs-titute of <i>A. senegal</i>	-	Almost throughout the State
22	<i>A.leucophloea</i> (Roxb.) Willd.	Runjh	T	St.	M	-	Throughout the State
23	<i>A.nilotica</i> (L.) Willd. ex Del.	Babul and Tikar	T	St.	E & subs-titute of <i>A. Senegal</i> & calico-printing, confectionaries	Fur.	Throughout the State
24	<i>A.senegal</i> (L.) Willd.	Kumta	T	St.	E as tonic and	-	Almost throughout

					confectionary		the State
25	<i>Albizialebeck</i> (L.) Benth.	Siras	T	St.	In. gum for jelly	Fur.	Almost throughout the State
26	<i>A.odoratissima</i> (L.f.) Benth.	Kali Siras	T	St.	In. gum for jelly	Fur.	Pali, Sirohi, Udaipur, Rajsamand, Dungarpur, Banswara, Kota, Baran, Jhalawar districts
27	<i>A.procera</i> (Roxb.) Benth.	Safed Siras	T	St.	In. gum for jelly	Fur.	Bikaner, Jodhpur, Dungarpur, Banswara, Kota, Baran, Jhalawar districts
28	<i>Dichrostachyacineria</i> (L.) Wt. & Arn.	Goya-Khair	T	-	-	Ag. Imp	Except Western Rajasthan
29	<i>Prosopis cineraria</i> (L.) Druce	Khejri and Jant	T	St.	E	Fur.& house building purposes	Throughout the State

Abbreviations: T = Trees; S = Shrub; H = Herb; St. = Stem; Sd. = Seed; E = Edible; M = Medicinal; F = Food; P = Paper; In. = Insoluble; Te. Ind. = Textile Industries; Ag. Imp. = Agricultural implements; Fur. = Furniture.

IV. CONCLUSION

On the basis of utility, the plant and plant parts are exploited by the natives, some of these are *Acacia nilotica*, *Albizialebeck*, *Cassia fistula*, *Dalbegialatifolia*, *D. sissoo*, *Erythrinasuberosa*, *Prosopis cineraria*, etc. *Ougeiniaoojeinensis* and species of *Erythrina* are considered threatened in Rajasthan. *Pterocarpus marsupium* is considered rare for the State and the *Bauhinia* group is not so common in Rajasthan. The plants are used not only for timber and gum but in several ways like sources of food, fodder, fuel and shelter.

Scientific modes of use, search for substitutes and use of other measures for rapid propagation are some of the remedial measures which may be practiced for ensuring a continuous supply of these products.

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