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Medicinal and economic importance of some wild and edible Legumes of Goa

B. F. Rodrigues
Department of Botany,
Goa University, Goa - 403 206, India
(e-mail: felinov2001@yahoo.co.uk)

Introduction

There is increasing pressure on natural habitats due to growing human population and enhanced pace of socio-economic development. This has led to the degradation of parts of earth's biosphere, and resulted in loss of biodiversity and agricultural productivity. Diversity among individual plants and animals, species and ecosystems provide the raw material that enable human communities to adapt to change – now and in the future. The diversity found within small number of plant and animal species remains small but vital of the earth's biodiversity. Through modern biotechnologies, wild diversity can also be incorporated into crops and contribute to world agricultural development.

With approximately 650 genera and 18,000 species, the family leguminosae is the third largest family of flowering plants. They are distributed throughout the world with majority of them in the tropics and subtropics (Lim and Burton, 1982). Rao (1985) listed out a total of 280 leguminous species belonging to 62 genera from Goa, Diu, Daman, Dadra and Nagarhaveli. Pal and Rodrigues (1998) reported the medicinal importance of 22 legume species from Goa. In the present paper an attempt has been made to study the species diversity of legumes with reference to their nutritional, fodder, timber, medicinal and other values.

Methodology

Both edible and wild legume species were collected from various parts of the State and were later identified using local floras and Herbaria. Information related to their economic importance was collected by consulting the locals.

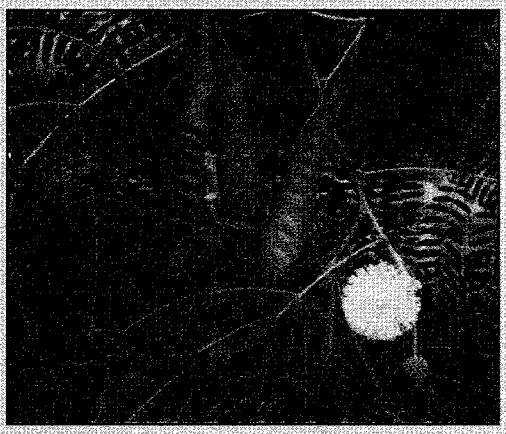
Results and Discussion

The following leguminous species have been identified and their economic importance including medicinal values have been listed in Table 1.

Calliandra inermis

Crotalaria verrucosa

Delonix regia



Leucaena leucocephala

Pongamia pinnata

Tamarindus indica

Table 1: Medicinal and economic importance of legumes.

Sl. No.	Plant species	Plant part & Medicinal use	Other Economic uses
1.	*Abrus precatorius* L.	**Roots**- Cough, catarrhal affections, diuretic, tonic, gonorrhoea, jaundice, haemoglobinuric bile. **Leaves** - Cough, cold, Sore-throat, painful swellings, biliousness, leucoderma, itching, skin diseases. **Seeds** - Ulcers, skin affections, sciatica, stiffness of shoulder joints, paralysis, diarrhoea, dysentery, anthelminthic, prevents conception. **Seed oil** - Promote human hair growth.	The fiber extracted from the stem is woven into baskets.
2.	*Arachis hypogaea* L.	-	Kernels are source of protein and oil. Orally consumed as such or after roasting, used in various foods and confectionery. They are ground and made into peanut butter.
3.	*Alysicarpus vaginalis* (L.) DC.	**Roots** - Leprosy, urinary troubles, cough. **Leaves** - Purgative.	Forage plant.
4.	*Alysicarpus bupleurifolius* (L.) DC.	**Whole Plant** - Vermicide for buffalo calves.	-
5.	*Atylosia scarabaeoides* (L.) Benth.	**Seeds** - Tapeworm. **Whole Plant** - Fever, dropsy, pains, anemia, sores, cholera and dysentery.	Green manure.
6.	*Canavalia lineata* (Thunb.) DC.	-	Sand binder.
7.	*Clitoria ternatea* L.	**Leaves** - Ulcers, snake poisons. **Root** - Diuretic, demulcent, laxative.	Ornamental as well as found growing in the wild. Useful forage and fodder crop.

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Sl. No.	Plant species	Plant part & Medicinal use	Other Economic uses
8.	*Crotalaria prostrata* Rottler ex Willd.	**Root** - Diarrhoea.	Fodder for cattle.
9.	*Crotalaria triquetra* Dalz.	-	Cover crop.
10.	*Crotalaria retusa* L.	**Whole Plant** - Scabies.	-
11.	*Crotalaria verrucosa* L.	**Leaves** - Scabies, fever, blood impurities, throat and mouth diseases, heart complaints, diminishes salivation.	-
12.	*Crotalaria medicaginea* Lamk.	-	Fodder for cattle.
13.	*Crotalaria pallida* Aiton.	-	Green manure.
14.	*Aeschynomene indica* L.	-	Fodder for cattle, green manure.
15.	*Dalbergia sissoo* Roxb.	**Leaves** - Gonorrhea. **Wood** - Leprosy.	Wood used for furniture, construction Leaves used for fodder.
16.	*Derris trifoliata* Lour.	-	Leaves used for fodder and to stupefy fish. Dried roots have insecticidal properties.
17.	*Desmodium gangeticum* (L.) DC.	**Whole Plant** - Antipyretic, anticatarrhal. **Root** - Fever.	-
18.	*Desmodium heterocarpon* (L.) DC.	**Whole Plant** - Tonic, cough.	-
19.	*Desmodium triflorum* (L.) DC.	**Leaves** - Wounds, abscesses.	The plant is used for pasture or lawn, yields good fodder, efficient soil-binder, used as a green manure.
20.	*Desmodium triquetrum* (L.) DC.	**Leaves** - Piles.	-

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Sl. No.	Plant species	Plant part & Medicinal use	Other Economic uses
21.	*Erythrina variegata* L.	**Leaves** - Laxative, diuretic, anthelminthic, galacteogogue, emmenagogue, fever. **Bark** - Genitourinary diseases.	Leaves used as cattle fodder. The tree is also grown as a support for pepper plants. Wood used for rafts, floats, canoes and catamarans. It is also grown as a shade tree for plantation crops.
22.	*Gliricidia sepium* (Jacq.) Kunth ex Walp.	-	Much valued for green manure. Leaves used as fodder.
23.	*Indigofera tinctoria* L.	**Whole Plant** - Epilepsy, nervous disorders.	Leaves yield a valuable blue dye, which is used for painting. It is also used as green manure.
24.	*Indigofera uniflora* Buch.-Ham.	-	Forage for cattle.
25.	*Pongamia pinnata* (L.) Pierre	**Leaves** - Whooping cough, wounds. **Seed oil** - Cutaneous diseases. **Seeds** - Cuts.	Wood is used for building purpose. Seed oil is used for burning and in preparation of candles and soaps. Wood used for yokes of bullock carts, ploughs, cartwheels, rafters, thatched cottages, and furniture.
26.	*Tephrosia purpurea* (L.) Pers.	**Whole Plant** - Tonic, laxative, diuretic, cough, kidney disorders. **Leaves** - Jaundice.	Roots are used to stupefy fish.
27.	*Teramnus labialis* (L. f.) Spreng.	-	Green manure.
28.	*Vigna sinensis* Savi.	-	Immature pods are eaten as vegetables. The leaves are eaten in salads and ripe seeds cooked in a variety of ways. The plant is good cover crop as well as fodder crop.

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Sl. No.	Plant species	Plant part & Medicinal use	Other Economic uses
29.	*Zornia diphylla* (L.) Pers.	**Roots** - Induce sleep in children. **Leaves** - Dysentery.	Good Fodder.
30.	*Delonix regia* (Hook.) Raf.	**Flowers** - Anthelminthic, rheumatism, flatulence.	Ornamental.
31.	*Erythrina suberosa* Roxb.	**Leaves** - Ulcers, maggot infested sores, toothaches.	-
32.	*Bauhinia purpurea* L.	**Roots** - Carminative. **Bark** - Diarrhoea.	Leaves and pods are good fodder, Ornamental.
33.	*Bauhinia variegata* L.	**Roots** - Astringent, alternative, scrofula, skin diseases, diarrhoea, dysentery, piles, worms, ulcers.	Ornamental.
34.	*Caesalpinia pulcherrima* (L.) Sw.	**Whole Plant** - Controls menstruation. **Leaves** - Purgative, tonic, emmenogogue. **Bark** - Abortifacient, bronchitis, asthma, malarial fevers.	Ornamental.
35.	*Cassia absus* L.	**Leaves** - Cough.	-
36.	*Cassia alata* L.	**Leaves** - Bronchitis, asthma, purgative, expectorant, aperient, astringent, anti-parasitic, abortifacient, anthelminthic, ringworm, herpes, parasitic skin diseases, insect bites. **Seeds** - Intestinal worms.	-
37.	*Cassia* spp.	-	Ornamental.
38.	*Wagatea spicata* Dalz.	**Roots** - Pneumonia. **Bark** - Skin diseases.	-
39.	*Acacia farnesiana* (L.) Willd.	**Leaves** - Gonorrhea.	Wood is used for cabinet work, shipbuilding and agricultural implements.

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Sl. No.	Plant species	Plant part & Medicinal use	Other Economic uses
40.	*Leucaena leucocephala* (Lam.) de Wit	**Seeds** - Vermifuge, gonorrhoea, defects of vision.	Used as green manure.
41.	*Cassia fistula* L.	**Leaves** - Laxative. **Fruits** - Purgative for habitual constipation, cathartic. **Roots** - Cold.	Ornamental.
42.	*Cassia surattensis* Burm. f.	**Roots** - Gonorrhea.	Ornamental
43.	*Cassia mimosoides* L.	**Roots** - Stomach spasms.	Forage for cattle.
44.	*Cassia occidentalis* L.	**Leaves** - Cough, whooping cough, skin diseases. **Roots** - Cough, whooping cough, skin diseases, snakebites. **Seeds** - Cough, whooping cough, skin diseases.	-
45.	*Cassia prostrata* Roxb.	**Roots** - Stomachache, diarrhoea.	-
46.	*Cassia sophera* L.	**Leaves** - Jaundice, ringworm. **Whole Plant** - Snakebite, expectorant in acute bronchitis, depurative, alternative, jaundice, skin diseases, ringworms, ulcers. **Bark** - Cathartic, diabetes. **Seed** - Skin diseases.	-
47.	*Cassia tora* L.	**Leaves** - Antiperiodic, aperint, alternative, anthelmintic, intestinal disorders, bee sting, stomachache, skin eruptions, itching. **Leaves and seeds** - Skin diseases like ringworm, scabies and eczema. **Root** - Snakebite, skin eruptions, itching.	Young tender leaves are used as vegetables.

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Sl. No.	Plant species	Plant part & Medicinal use	Other Economic uses
48.	*Peltophorum pterocarpum* (DC.) Backer ex Benth.	**Bark** -Tooth powders, opthalmia, dysentery, ulcers.	Wood is used for fuel.
49.	*Samanea saman* (Jacq.) Merr.	-	Leaves & pods used as fodder; green and tender ones relished by cattle. Used for fuel.
50.	*Pithecellobium dulce* (Roxb.) Benth.	-	Hedge and fuel wood plant. Pods and leaves used as fodder. The aril is eaten raw.
51.	*Calliandra inermis* (L.) Druce	-	Ornamental.
52.	*Pseudarthria viscida* (L.) W. & A.	**Root** - Biliousness, rheumatism, excessive heat, fever, diarrhoea, asthma, heart diseases, worms, piles.	-
53.	*Acacia farnesiana* (L.) Willd.	**Leaves** - Gonorrhoea.	-
54.	*Sesbania bispinosa* (Jacq.) Willd.	**Seed** - Ringworm, skin diseases, wounds.	-
55.	*Smithia sensitiva* Ait.	**Leaves** - Refrigerant. **Whole Plant** - Headache.	-
56.	*Butea monosperma* (Lam.) Taubert	**Flowers** - Urinary infections.	Ornamental.
57.	*Dolichos biflorus* L.	**Seeds** - Cold.	Cultivated as a pulse crop.
58.	*Glycine max* (L.) Merr.	**Seeds** - Cold.	Cultivated as a pulse crop.
59.	*Tamarindus indica* L.	**Fruit** - Centipede bite, Scorpion bite. **Leaves & Bark** - Bone injury.	Fruit pulp is used for souring curries and chutneys.
60.	*Trigonella foenum-graecum* L.	**Seeds** - Body pain.	Seeds are used as spice and condiment.
61.	*Mimosa pudica* L.	**Leaves** - Piles, Fissure, loose motions, Septic skin infections, wounds, cuts.	-
62.	*Acacia nilotica* (L.) Del.	**Bark** - Bleeding gums.	Used as fuel wood tree.

Conclusion

Sixty two identified legumes along with their medicinal and other economic importance have been recorded. These legume species have been used for various purposes. However, there is need of a well conceived and dynamic programme of biodiversity estimation, conservation and sustainable utilization. The overall estimation of extent of legume diversity would be useful to take up work on ecorestoration of degraded habitats in the State as legumes by virtue of their nitrogen fixing capabilities are very important contenders.

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