SPOTLIGHT ON IDENTIFICATION OF *PROSOPIS GLANDULOSA* TORR. & *PROSOPIS JULIFLORA* (SW) D.C.

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ABSTRACT

The American native two species *Prosopis glandulosa* (Honey mesquite) and *Prosopis juliflora* (Mesquite) were introduced in 1878. Literature was reviewed and information were gathered both from printed material and electronic through Internet and personal experience. Morphological characteristics, Taxonomy, Common names, Botanic description, Leaves, Thorn / Spines, Flowers, Fruit and Seeds were compared and highlighted in the text for easier identification on the spot in the field. In *Prosopis glandulosa* leaflets are light green in colour, 6-17 pairs arranged distantly with single thorns/spines, very rarely two whereas, the leaflets of *Prosopis juliflora* were dark green in colour, 13-25 pairs arranged closely with a pair of thorns. The seeds oblique to longitudinal, dark brown in colour in *P. glandulosa* and compressed, light brown with flat cotyledons in *P. juliflora*.

INTRODUCTION

The American native two species, *Prosopis glandulosa* (Honey mesquite) and *Prosopis juliflora* (Mesquite) were introduced in 1878 (Parker, 1918) and after independence (1947) with the objective to enhance vegetation cover. These species has been naturalized and most commonly found on barren arid land in the plains and hilly areas of Pakistan. *Prosopis glandulosa* grows well on rocky and undulating terrains such as foothills of Cherat and other similar ecological areas (Stewart, 1972). *Prosopis* is the old Greek name for the burdock; *glandulosa* refers to nectar glands in the flower. *Prosopis glandulosa* is environment friendly and not invasive / aggressive in nature whereas, *Prosopis juliflora* grows mostly in plains, invasive in nature and invaded extensively the irrigated areas. Both are hardy species and grow well in places where it is hard for other species to grow. Mostly the foresters are confused in identification of the said species. In this context an attempt have been made to mitigate doubted situation and prepared a pictorial guideline for identification of *Prosopis glandulosa* and *Prosopis juliflora* to facilitate field foresters for identification on the spot at glance. This manual will help the students of plant science, forestry, agriculture and other interested disciplines and in choice of species in future for planting and planning purposes.

MATERIAL AND METHODS

The observations were recorded on Indus High way from Peshawar to Karachi, Cherat hills, plain areas of Sindh and Punjab and along railway track and photographs depicted for identification. Literature was reviewed and information were gathered both from printed material and electronic through Internet and personal experience. Photographs were downloaded from Internet and scanned from printed material. The information were arranged in systematic order right from taxonomy to seed differences of both the species and were compared to facilitate the reader in identification on pictorial and character basis.

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RESULT AND DISCUSSION

Different morphological characteristics in the field, herbarium specimens and illustrations / photographs of both the species were studied keenly and comparison was drawn that there is a quite visible difference in the morphological characters particularly in the colour of leaflets, and number of thorns. The leaflet of *Prosopis glandulosa* is light green in colour, in 6-17 pairs and arranged distantly whereas the leaflets of *Prosopis juliflora* are dark green in colour, in 13-25 pairs and arranged closely. It is noted that number of thorn/spines is mostly one or single and rarely two in the former whereas, two in numbers in the later.

CONCLUSION

It is concluded that Prosopis species can be easily identified on the spot in the field on the basis of morphological characteristics like leaflet colour, their arrangement and number of spines. In *Prosopis glandulosa* leaflets are light green, in 6-17 pairs arranged distantly with single thorns/spines and very rarely two whereas, the leaflets of *Prosopis juliflora* are dark green, in 13-25 pairs closely arranged with two thorns.

Prosopis glandulosa
Source: www.wikipedia.org

Taxonomy

Current name: *Prosopis glandulosa* Torr.
Family: Fabaceae – Mimosoideae

Synonym(s)

Prosopis chilensis var. *glandulosa* (Torr.) Standl.
Prosopis juliflora var. *glandulosa* (Torr.) Cockerell
Prosopis juliflora var. *torreyana* L. D. Benson

Common names

Mesquite (Arabic), honey mesquite, mesquite (English), Devi (Pak).

Botanic description

Prosopis glandulosa is a deciduous tall shrub or small tree of 3-9 m, rounded crown and crooked, drooping branches with feathery leaves. Stem dark brown and straight. Bark: rough, dull red with fissured.

Leaves

Compound glabrous and light green, leaflets in 6-17 pairs, about 7-18 mm distant on the rachis, linear or oblong, obtuse, glabrous, sub-coriaceous, prominently veined underside; costa frequently of lighter colour, (min. 1.5) 2-6.3 cm long x 1.5-4.5 mm broad, 5-15 times as long as broad.

Thorn/Spines

Axillary, uninodal, 1-4.5 cm long, mostly solitary, sometimes very few, germinate alternately on different nodes of the same twig.

Flowers

Yellow in colour, racemes spiciform, about 5-14 cm long, multiflorous; petals 2.5-3.5 mm long; ovary stipilate, villous.

Fruit

Legume straight, 8-30 cm x 5-13 mm, rounded, rarely subfalcate, compressed to subterete, submoniliform, glabrous, straw-yellow or tinged with violet, short-stiped, with strong, short, or elongate acumen, 5-18 seeded; joints subquadrate to oval; Brown in colour.

Seeds

Oblique to longitudinal dark brown in colour.

Prosopis juliflora

Taxonomy

Prosopis juliflora (Sw.) DC.
Family: Fabaceae – Mimosoideae

Synonym(s)

Algarobia juliflora (Swartz) Benth. ex Heynh.
Mimosa juliflora Swartz., *M. salinarum* Vahl., *Netuma juliflora* (Swartz) Raf., *Prosopis cumanensis* Kunth., *P. dominguensis* DC.
P. vidaliana Naves.

Common names

Mesquite (Arabic), algarroba, mesquite (English), Devi (Pak.)

Botanic description

Prosopis juliflora is an evergreen tree with a large crown and an open canopy, growing to a height of 5-10 m. Stem green-brown & twisted, Bark somewhat rough, dull red.

Leaves

Compound and dark green, leaflets in 13-25 pairs, oblong (3 x 1.7 mm), bipinnate with 1 or sometimes 2 pairs of rachis, almost pendulous.

Thorns

Axillary, situated on both sides of the nodes and branches.

Flowers

Lateral to the axis with a tubular, light greenish-yellow, 1.5 mm wide calyx with hooded teeth; corolla light greenish-yellow, composed of 5 petals with 3 mm wide pubescent along its edges.

Fruit

Pod compressed, straight, linear, falcate to annular, with a coraceous mesocarp in 1 segment or divided into several segments.

Seeds

Compressed, ovoid, hard, light brown, cotyledons flat, rounded.

REFERENCES

www.wikipedia.org

Parker, R. N., 1918. Forest Flora of Punjab with Hazara and Delhi. Superintendent, Govt. printing press Lahore.

Stewart, R. R., 1972. Flora of West Pakistan. An annotated catalogue of vascular plant of West Pakistan and Kashmir; Fakhri Printing Press, Karachi.