Fact Sheet - **Plants of Sudan**

Senegalia Senegal

Family name: **Leguminosae**

Common name: **Leguminosae**

Local name: **(الهشاب) Hashab**




Wild and cultivated

Role in Biodiversity

- *Senegalia senegal* is able to fix atmospheric nitrogen (N2), increasing the soil inorganic nitrogen content and microbial biomas and serves as alternative of chemical fertilizers in the arid regions of Africa.
- It affects the distribution and abundance of animal species by providing shade, shelter, nesting sites, specialized food or prey items.
- It is highly suitable in agroforestry systems in combination with watermelon, millet, forage grasses and others facilitating ecological restoration and construction in arid areas.

Environment and Growing

Senegalia senegal grows naturally in arid, subtropical and semi-arid climatic zones.It is highly drought tolerant species and can survive prolonged dry periods of 8-11 months. It prefers well drained soils and can grow on slightly loamy sands. Soil conditions may vary from coarse-textured, deep sandy soils to dry, rocky, slightly acidic to moderately alkaline soils.

Growth requirements:

- Rainfall range of 280–450 mm per annum on sand.
- Rainfall range of 500mm per annum on clay plains.
- Maximum temperature reaching 50C.
- Altitude range 100-1700 m.

Reproduction and Communication

The flowers of *Senegalia senegal* are bisexual and self-incompatible. The bright yellow flowers produce nectar and pollen grains as rewards for visiting insects. Cross-pollination largely depends on bees and other insects.

Acacia senegal can generates naturally or artificially from seeds or vegetatively from coppice.

Life span

Senegalia senegal trees have a life span of about 20–30 years, some may live longer. Mature trees begin to produce gum arabic, a valuable exudate, typically after about 5 years of age. This production peaks around 15–25 years.

Size

Senegalia senegal avearage hight range is 2–6 metres.

Parts

Branches are scaly and thin. They are fork repeatedly and in mature trees commonly form a rounded, flat-topped crown.

Edit / Translate

Senegalia senegal has deep tap roots and expansive remaining root system equal to about 40 per cent of its total biomass.

Leaves are alternate pinnately compound, green-grey and 3.5–8 cm long. Two glands are present between the uppermost and lowermost pinnate. Leaflets are small, linear to elliptic-oblong, and their tip is either blunt or somewhat pointed.

flowers are found on cylindrical spikes and are yellowish-white in colour, fragrant.

Fruits are straight, thin, flat, oblong and green pods.

Seeds are dark-brown in colour and appear smooth, flat and shiny.

INTRODUCTION

Small tree or shrub

Senegalia senegal, gum arabic, is a deciduous shrub highly valued for centuries for gum arabic production. It is widely distributed in dry tropical and subtropical Africa. It is occuring naturally as wild in a belt 300 kilometers wide extending south of the Sahara desert from Mauritania to Sudan, Ethiopia and Somalia and extending southwards in east Africa. It is also frequently planted in the Sahel region. This plant is characterized by greyish white to dark scaly and thin bark and a powerful hooked thorns, 3-5 mm long, with enlarged bases appear at the nodes of the branches.

Sudan is the world's largest producer of gum Arabic providing 80% of the global supply. This raw material is essential for the pharmaceutical, cosmetic, food and beverage industries, in particular for forming the basis for sparkling or carbonated drinks. Nearly all the gum arabic produced in Sudan, mostly hashab, is exported. The tree is abundant in the Sudan, particularly in the province of Kordofan. It is estimated that 15% of the population of Sudan depends on the revenue generated from the production of this unique natural resource.

LIVELIHOODS / CULTURE

Cultivation

In Sudan, trees are cultivated over a very large area. Seeds produced once every few years, it may collected from wild trees or grown in special "gum gardens."

1. Artificial regeneration by direct seeding: By sowing seeds directly in the fields is a common practice.

2. Artificial regeneration by nursery raised seedlings: Polythene bags 30 cm high and 6 cm in diameter with light and moist soil are used for sowing.

No compost is applied to avoid overheating by fermentation. After 4–6 weeks the seedlings are thinned to 1 per pot. After 14–18 weeks, seedlings attain a height of 30 cm and can be planted out in the field.

3. Artificial Regeneration by Vegetative Propagation

Propagation achieved both by seeds planted in nursery and by vegetative means using cuttings, grafting, layering and micro-propagation (tissue culture).

The trees were traditionally grown in a controlled bush fallow system with a 20–25 year rotation; 4–5 years of cropping was alternated with a fallow period with gum trees for 15–20 years.

Cultural Value

- Nutritionally, fresh wet gum is directly eaten by people as foodstuff.
- Leaves, tree bark, flowers and pods are browsed by sheep, goats, camels.
- Gum arabic is also added to juice in the local house-made juices.
- Dusty gum and gum with impurities are mixed with animal waste, mud and water and left for a week to be fermented. Afterwards the product is used for painting houses.
- School children mix gum with sugar to make glue for mending their books.
- powdered gum and gum are used in traditional ink preparation (mixture of gum and charcoal), which is used in teaching Holy Quran in Kalwa.
- The *Senegalia senegal* tree provides wood for use as fuel and local construction materials.

Medicine and Health

Gum Arabic is used by local communities to protect against hepatic, renal, and cardiac complications in diabetic and chronic renal failure patients. It is also used to cure hematuria with infusion, toothache by filling the tooth cavity with gum powder, and stomach disorders and kidney pains with gum decoctions.

Cultural Expressions

Gum Arabic song for kids...

Song mentioning the Hashab tree

THREATS

The region of *Senegli Senegal* (Sudano-Sahelian region) is characterized by severe changes due to climate variability and human activities. Threats that occur particularly in this region are:

1. Soil erosion, deforestation.
2. Loss of soil fertility.
3. Loss of biodiversity.
   Regular drought strongly limits the survival and productivity of *Senegli Senegal* and reduces its density.

Image(s) source :

Link(s)

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