

Khejri (*Prosopis cineraria* L. Druce): The lifeline of the Desert

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Introduction

The Thar Desert, popularly referred to as the Great Indian Desert, occupies nearly 4.56 percent of India's total area. Rajasthan occupies around 60% of the desert, with the Indian states of Punjab, Haryana, and Gujarat accounting for 25% of the whole, and the Islamic Republic of Pakistan accounting for the remaining 15%. It is the world's 17th largest desert and also the ninth largest hot climatic zone. The desert is split into completely three classes' different categories i.e. a very dry area is known as the "Marusthali region," a semi-desert region having sand dunes in the eastern, and a semi-desert area with sand dunes in the western. The climatic conditions of Thar Desert are extremely harsh. The temperature rises over 35 degrees Celsius throughout the summer and drops below 0 degree Celsius during winter months.

Prosopis cineraria, "State tree of Rajasthan" is a wonderful and economic tree. It is popularly known as khejri, khejra, jant, jantighaf, jand, kandi, vanni, sami, sumri. It belongs to the family *Fabaceae* and originated from native to arid parts of Western Asia and also Indian landmass, together with the Asian nations, Afghanistan, Bahrain, Iran, India, Oman, Pakistan, Saudi Arabia, the United Arab Emirates, and Yemen. In India is found in the arid and semi-arid regions of Rajasthan, Gujarat, Punjab, Haryana, and Madhya Pradesh.

Importance and uses

Every part of the *Khejri* plant is beneficial to existence and plays a significant role within the social lifetime of the human that is why it is known as "Kalpavriksha of the desert", "The king of the desert", "The lifeline of Thar Desert" and "The wonder tree". *Khejri* is the lifeline of "The Great Indian Thar Desert" because it has the ability to survive in extremely harsh climatic conditions. It has the ability to be resistant to frost and drought and tolerates highly extreme temperatures up to 45°C in summer and less than 0°C in winter. It is capable of growing in areas of rainfall ranging from 100–600 mm. The tree can withstand the hottest winds, the driest season, and stay alive where other



plants cannot survive. One most important event that makes it special that is during the Great Rajputana Famine of 1868, it famously saved thousands of lives.

It is called as Golden tree/King of the desert because it provides all types of services like fuelwood, fodder, timber, improves soil fertility and provides shade and shelter to all the wildlife, cattle, and human being during the scorching heat of extreme summer and stabilizes income during drought and enhances the quality of landscape. *Khejri* is a nitrogen-fixing leguminous tree with a deep root system which enables it to use water from the deeper layers of soil and makes moisture available to the crops. It saves human beings during the famine, as its powdered bark can be mixed with flour for consumption. *Khejri (Prosopis cineraria)* based agroforestry systems in this area not only enhances farm income and family nutrition but also its resilience under hostile conditions.

Khejri based agroforestry systems are very productive, diverse and efficient. The ecosystem services provided by *Khejri* based agroforestry systems which emphasize multiple services of food, fodder, and firewood; regulatory and supporting services including the control of erosion, carbon sequestration, improvement in microclimate, arrest of desertification, soil fertility improvement, and biodiversity conservation; aesthetic and religious services that value farmers involvement and empowerment, is the only viable option to meet the basic needs during the period of climate change.

Historical importance: “Khejarli massacre”:

A small village Khejarli positioned 26 km away from the southeast of Jodhpur in Rajasthan witnessed environmental protection in 1730. Amrita Devi and her three young daughters sacrifices their lives to protect the tree when the ruler of Marwar Maharaja Abhay Singh had ordered to be cut down the trees for constructing his new palace. At the time the people of the Bishnoi community were inspired by Amrita Devi and they started protecting trees through hugging and at the same time as the king guys chopped their bodies with axes. Approximately 363 people sacrificed their lives for saving the *Khejri* tree.

This effort had a make long-term impact on environmental advocacy and became the inspiration to a new generation.

Importance of *Khejri* in Thar Desert Ecosystem:

- It controls soil erosion and stabilizes sand dunes effectively
- It maintains and restores soil fertility through fixation of nitrogen in the sandy soil.
- The dry leaves are called “loong” and used as fodder for domestic animals like goat, sheep, camel and wild animals like blackbucks, nilgais, chinkara, and more.

- Provides shelter to fauna and flora.
- And attracts honeybees for pollination.



The social importance of *Khejri*:

- *Khejri* trees are worshiped on the occasion of various festivals like Janmashtami, GogaNavmi, Nag Panchami and marriage and son born functions.
- In most villages, dry branches and wood of *khejri* trees are used as fuel for making food. The immature dry pods are used to make the very popular local dish ‘Sangri Sag’ and can fetch higher prices up to Rs. 500 - 600 per kg.
- *Khejri* is one of the major tree species planted in Oran (the repository of rich biogenetic diversity and venue of local and universal manifestation of aesthetic tradition and socio-secrecies).

Threats

In spite of being the most reported tree in the desert with all its significant importance to the local area through food, fodder, wood, and medicine but the tree is battling for presence. In the beyond a couple of many years, there has been an adjustment of the biological states of the Thar the population of *Khejri* tree has been declined day by day. According to a report published by the Central Arid Zone Research Institute (2015) which reported that the number of *Khejri* trees per hectare in the 12 dry districts of Rajasthan had dropped to under 35 percent. This, the report stated, the population of *Khejri* plant has declined at an alarming speed with so many reasons like continuous reduction in groundwater level, climate changes, attack of insect pest (mainly termite) and fungal diseases, and unpredictable cutting due to urbanization, etc. Further, the preface of numerous threatened *Khejri* tree species in the desert climate has getting replaced by fast-growing tree species namely neem (*Azadirachta indica*), Gulmohar (*Delonix regia*), Karanja (*Pongamia pinnata*), Sheesham (*Dalbergia sissoo*), and peepal (*Ficus religiosa*) in the desert ecosystem.

Strategies to stop the declining *khejri* tree population:

- Awareness among the farmers to conserve and plant more trees on their fields
- Strengthening of research and development activities to develop fast growing varieties with early fruiting habit.
- Processing and marketing of various products of *Khejri* fruits
- To control insect pest attacks.