

CHAPTER 8

Food, ethnomedicinal, pharmacological, ecological, economic, and ornamental aspects of *Schleichera oleosa* (Lour.) Oken: a medicinal tree of India

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Abstract

Schleichera oleosa, commonly known as Kusum, is a wild edible fruiting tree of India. It belongs to the Sapindaceae family. It has food, medicinal, ecological, economic, and ornamental values. Keeping in mind the importance of Kusum, a field and literature survey was carried out, and the results presented here bring attention towards its services to mankind and ecology. We provide photographs for identification and academic purposes.

Keywords: Tribal food, kusum, oilseeds, sapindaceae

Introduction

Since prehistory, humans have always been attracted to trees having multiple uses. Indigenous people identified such trees and started using their parts for day-to-day use. They had a good understanding about the sustainable utilization and role of trees in ecological balance. In the modern era, we are technically sound but losing our rich traditional knowledge and use of local trees and their utilization (Sharma et al., 2024). *Schleichera oleosa* (Figure 1) is such a tree species of India having food, medicinal, pharmacological, ecological, economic, and ornamental values. It is commonly known as Kusum. In Indian Ayurveda, it is known as Koshamra (Khan et al., 2017). It belongs to the Sapindaceae family (Nayak and Kumar, 2023). It is also

known for the Sal (*Shorea robusta*) associated trees of India. It is a tree that can be seen in the wild inside forests and tribal-rural areas of many states of India. Locals plant it near their house for its utilization. Keeping the importance of *Schleichera oleosa*, an attempt has been made to gather the information from literature (Palanuvej and Vipunungeun, 2008; Khan et al., 2017; Nayak and Kumar, 2023) and field surveys and present it in this chapter.

Morphology

The tree has dense foliage and thin bark (Figure 4). Leaves are paripinnate (Figure 2). Leaflets are opposite or subopposite, sessile, elliptic or oblong, entire, acuminate, and glabrous. The flowers are yellowish and small (Figure 3). Stamens are glabrous or slightly hairy. Ovary 3-celled. Drupe is ovoid and sharply pointed (Figure 1). Seeds are brown and compressed (Saxena and Brahmam, 1994).



Figure 1: Fruits of *Schleichera oleosa* (Photo credit: Dr. Sanjeet Kumar)



Figure 2: Leaves of *Schleicheria oleosa* (Photo credit: Dr. Sanjeet Kumar)



Figure 3: Flowers of *Schleicheria oleosa* (Photo credit: Dr. Sanjeet Kumar)



Figure 4: Bark of *Schleicheria oleosa* (Photo credit: Dr. Sanjeet Kumar)

Food values

Ripen fruits are edible (Figure 5). In some places, seed oil is also rarely used as vegetable oil for cooking purposes (Present study).



Figure 5: Children and 4th author consuming the fruits of *Schleicheria oleosa* in tribal areas

Ethnomedicinal uses

Seed (Figure 6) oil is used to cure fungal infections during paddy cultivation. Seed oil is also used to apply for treating skin infections and getting healthy skin. It is also used to cure pain and rheumatism (Khan et al., 2017). Seed oil is also used for promoting hair growth (Palanuvej and Vipunngeun, 2008), against skin itching, and to cure women problems (Present study).



Figure 6: Seeds of *Schleicheria oleosa* (Photo credit: Dr. Sanjeet Kumar)

Pharmacological potential

Plant parts are reported having anti-inflammatory and analgesic potential (Khan et al., 2017). Seed extracts reduce the proliferation of breast cancer by regulating the BRCA1 and p16 Genes (Sahu et al., 2022). It has antimicrobial potentials (Ghosh et al., 2011).

Bioactive compounds

Phytochemicals like betulin, lupeol, β -sitosterol, lupeol acetate, betulinic acid, tannin, scopoletin, etc. are found in the bark of *S. oleosa* (Bhatia et al., 2013; Figure 7). The seed oil consists of stearic, oleic, gadoleic, arachidic, and some hydrocyanic acids which are responsible for treating skin problems, rheumatic pain, hair growth stimulants, etc (Meshram et al., 2015). Triterpenoids, taraxerone, and tricadenic acid are found in the outer bark of *S. oleosa* (Ghosh et al., 2011). Leaves of *S. oleosa* have some bioactive compounds like alkaloids, carbohydrates, flavonoids, phenols, steroids, glycosides, etc. which makes them a vital component in traditional medicines (Muthukrishnan and Sivakkumar, 2018).

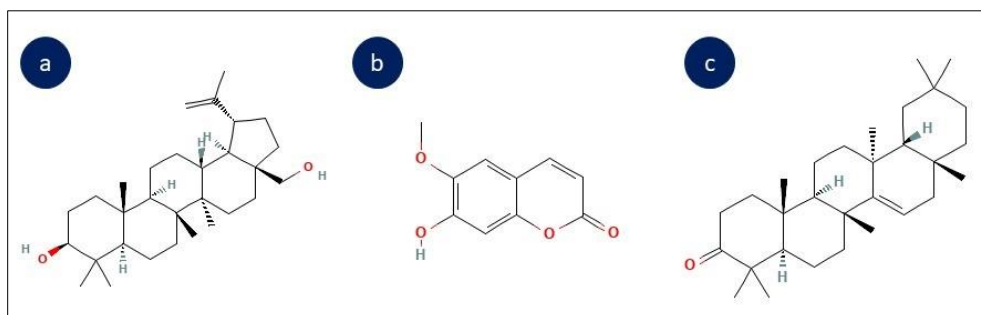


Figure 7: Some common bioactive compounds a) Betulin; b) Scopoletin; c) Taraxerone
(Source: PubChem)

Ecological services

Fruits are edible for many bird species. It is a host tree of Red Weaver Ants. Many birds and small mammals use it for nesting tree. In southern India, it is a prominent bee plant for nectar and is also used for production of animal feedstock (Pettit et al., 2000).

Economic values

Seed oil and fruits are used to sell in the local weekly markets (Figure 8).



Figure 8: Fruits of *Schleicheria oleosa* in the weekly tribal market

Ornamental values

Due to beautiful canopy and reddish-brick colour of new leaves, it is used for plantation in botanical gardens, campuses of organization for beautification purposes (Figure 9).

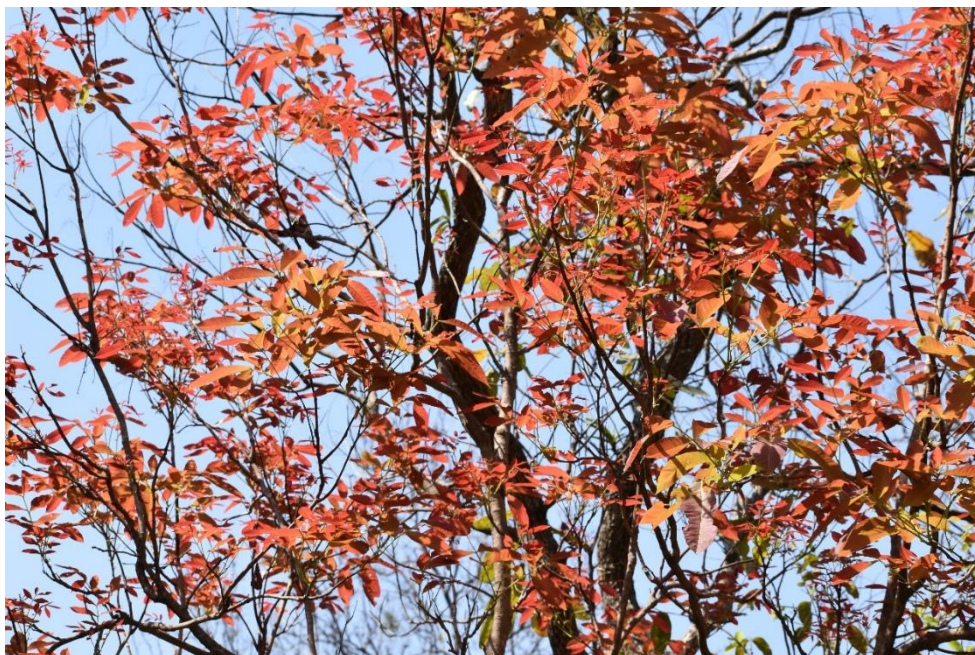


Figure 9: Beautiful leaves of *Schleicheria oleosa* at State Botanical Garden, Odisha

Conclusion

The present study concluded that fruits are edible and seed oil has medicinal values, so there is a need for value addition to the upliftment of tribal life. It has ethnomedicinal importance, so it could be used to formulate several drugs to fight against several health issues.

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