

**Bioprospecting Potential of *Ficus sycomorus*
for Access and Benefit Sharing**



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1. Introduction

Ethiopia has issued proclamation on Access to Genetic Resources and Community Knowledge, and Community Rights Proclamation No. (482/2006) and Regulation No. (169/2009). Based on these legal frameworks, the country has been implementing the access and benefit sharing objective of the CBD. The Proclamation includes a range of issues such as ownership, user rights, and conditions for access, benefit sharing, types of benefits, powers and responsibilities among the others. The law bears the necessity of Prior Informed Consent (PIC) to access genetic resources or community knowledge. Following PIC, the Ethiopian Biodiversity Institute including the local communities, negotiate on Mutually Agreed Terms (MAT) with the User of the genetic resource.

Therefore, this call is intended to encourage any bioprospecting company or an individual interested to work on *Ficus sycomorus* from Ethiopia.

2. Plant description

Ficus sycomorus, is commonly known as ‘Shola’ or ‘Bamba’ (Amharic). The plant is also known by several English names such as wild fig, strangler fig, Sycamore, sycamore fig, bush fig, and common cluster fig. It is a fig species that has been cultivated since ancient times. *Ficus sycomorus* belongs to the Family Moraceae, comprising about 40 genera and over 1,400 species of trees, shrubs, vine and herbs, often with milky latex juices. *Ficus sycomorus* is a large, semi-deciduous spreading tree, up to 21 m. The bole can be up to 100cm in diameter and is occasionally buttressed. Bark on young stems is pale green with a soft powdery covering; grey-green, fairly smooth, with scattered grey scales and pale brown patches on older stems. Leaves are broadly ovate or elliptic. The flowers are unisexual, cyclic and greenish. *Ficus sycomorus* is 2–3 cm in diameter and found in leaf axils or on up to 10 cm leafless branches on old wood as in single or paired form. The seeds are numerous, round and very tiny.

3. Ecology and Distribution

Ficus sycomorus is native to South West Africa, Ethiopia, Kenya, Egypt, Middle East and Israel (Awoke Kassa *et al.*, 2015): and in its native habitat, it is usually found in rich soils along rivers and in mixed woodlands. The plant is sometimes cultivated, mainly in the east and south Mediterranean Regions (Crete, Israel, Syria, Yemen), for its edible fruits (<http://mansfeld.ipk->

gatersleben.de). It is one of the oldest cultivated fruit plants in Egypt and Ethiopia, often depicted in old Egyptian mural and tomb paintings (<http://mansfeld.ipk-gatersleben.de>). It grows well in the area, which receives mean annual rainfall ranging from 500-1800 mm per year with deep, well-drained loam to clay soil types or Sandy soils with a shallow ground water (Awoke Kassa *et al.*, 2015). The best site for *F. sycomorus* trees is next to drainage lines, streams, rivers, springs or dams. The plant grows in altitude ranges of 0-2000 m, mean annual temperature range of 0-40°C (<http://www.worldagroforestry.org>).

4. Uses of *Ficus sycomorus*

Food: Mature fruits are, Sweet and aromatic, eaten fresh, stewed, or dried and stored for later use. The leaves contain substantial level of nutrients, minerals and bioactive components. It contains all the essential amino acids which could contribute useful amount to human diet (Nkafamiya *et al.*, 2010). Leaves are used in soups and groundnut dishes. Study aimed to investigate the protective effects of *Ficus sycomorus* L. against high fat induced obesity in experimental rats, concluded that *Ficus sycomorus* L. leaves could hinder weight gain and prevent its related disorders, implicating its anti-obesity (El-Hashash, 2014). The bark is chewed together with kola nut. In Ghana, the wood ash is commonly used as a salt substitute.

Fodder: *Ficus sycomorus* trees can provide year-round fodder to be used as a supplement in lean periods. With proper management and propagation techniques, this fodder can be a viable feed resource to supplement small ruminants for landless farmers. *Ficus sycomorus* fruit and forage serves as feed for livestock in Ethiopian highlands (Awoke Kassa *et al.*, 2015). Leaf is a much-sought fodder with fairly high nutritional value; they are valuable fodder in overstocked semi-arid areas where the trees occur naturally. Leaf stored on farms for use as manure for paddy fields (Awoke Kassa *et al.*, 2015).

Alcoholic beverage: The fruit can also be used for the preparation of an alcoholic beverage. For example, 100 g of ripe *Ficus sycomorus* (which contains 0.7% ethanol and 85% sugar) fruit, when completely metabolised, releases a total of 210 kJ with ethanol contributing 20.8 kJ (Zungu and Downs, 2017).

Medicine: *Ficus sycomorus* is used in Nigeria, Niger, Mali, South Africa, Guinea, Kenya, Tanzania, Somalia, Ethiopia and Ivory Coast as extracts of fruits, leaves, root and stem barks to treat various ailments such as cough, diarrhea, skin infections, stomach disorders, liver disease, epilepsy, tuberculosis, lactation disorders, helminthiasis, infertility, sterility and *Diabetes mellitus* (Igbokwe *et al.*, 2010; Adoum *et al.*, 2012). The plant has also been reported to be a potent antimicrobial agent against ciprofloxacin resistant *Salmonella typhi* (Adeshina *et al.*, 2010). In Palestine, the milky sap from *F. sycomorus* stem bark is used for treating skin diseases while a decoction of the stem bark is used for problems of the gastrointestinal tract. It is also used as seasoning; leaves are dried and added to cake as a condiment, eaten raw or cooked as soup. Dry branches of the species are collected for use as fuel (Auda, 2012).

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