

HAGENIA ABYSSINICA

Description

Other names

African Redwood, East African Redwood, Kosso

Natural range

Ethiopia, Eritrea, Sudan, Uganda, Kenya, Democratic Republic of Congo, Rwanda, Burundi, Tanzania, Zambia and Malawi

Family

Rosaceae



Figure 1. Flowers of *Hagenia abyssinica*.

Hagenia abyssinica is a highly ornamental tree species with large attractive red flowers. Trees are either female with flowers coloured in red, or male, with male with characteristic flowers in white or orange to brown. The flower are arranged in large hanging groups, consisting of many small flowers. The small and dried fruits are hidden within the dried part of the flowers.

The leaves are hairy, dark green and slightly jagged and reaching lengths of 40 centimeter. The reddish brown tree bark often peels from the trunk and branches. In total, this species grows up to 25 meters in height.

Hagenia abyssinica prefers cool, wet climates such as those conditions found in moist montane forests, and can also grow on rocky ground. This species occurs predominantly at 2,300 to 3,300 meters above sea level, in the upper regions of montane forests generally just below the tree line.

Source: GLOBAL TREES CAMPAIGN 2014

IUCN conservation status

In Ethiopia this species occurs in the Afromontane Juniper-Hagenia forests of the Simien and Bale Mountains, a forest type unique to Ethiopia, with associated tree species (*Juniperus procera*, *Afrocarpus falcatus* and *Hypericum revolutum*) and endemic species of fauna including the Endangered Mountain Nyala (*Tragelaphus buxtoni*). *Hagenia abyssinica* has a wide but scattered range and is stated to be "of serious conservation concern within the country [Ethiopia]" in THE RED LIST OF ENDEMIC TREES AND SHRUBS OF ETHIOPIA AND ERITREA (VIVERO ET AL., 2005), an IUCN endorsed Global Trees Campaign publication.



Figure 2. *Hagenia abyssinica*.

A conservation assessment is not given for this species in the 2005 Red List publication as it is not endemic to Ethiopia or Eritrea. A global assessment of this species has not been published on the IUCN Red List, but its population is declining (pers. comm. VIVERO, 2014) as deforestation is occurring rapidly throughout the high elevation Afromontane regions of central and eastern Africa (FAO, 2010). The fact that this species is highly utilized and not widely cultivated, adds to the great need for conservation action for this species and its forest habitat, which are now rare in Ethiopia.



Figure 3. *Hagenia abyssinica*.

Ethnomedicinal importance of *Hagenia abyssinica*



Figure 4. *Hagenia abyssinica* forest.

Hagenia abyssinica has been highly utilized for centuries in Ethiopia and has great local importance. All parts of the plant have medicinal properties, which can be used against several human and livestock ailments, like the common treatment of tape worm with an infusion of dried female flowers. Moreover the roots can be cooked with meat to make a soup for treating general illness and stomachache and the bark can be used to treat fever and bronchitis.

The beautiful dark red wood is a popular timber species for furniture, floors and constructions. Furthermore *Hagenia abyssinica* is collected as fuelwood and used for soil fertility management.

Source: GLOBAL TREES CAMPAIGN 2014

Ethnomedicinal value of parts of *Hagenia abyssinica* among rural communities of Ethiopia

Bark	Flower	Root	Leaf
Fever/Cough Stomachache Cold (bronchitis) Livestock disease Dermatology Malaria	Intestinal worms (tape worm) For healing wound Epilepsy Evil eye Hepatitis Sexually Transmitted Diseases (STDs) Problems related to Bile	Stomachache Severe abdominal pain Throat disease Cancer (mixed with other plants) Severe stomach pain	Diarrhea Typhoid Cough Livestock disease (mixed with <i>Juniperus procera</i>) For healing injured part (human/livestock)

Source: ASSEFA, GLATZEL, BUCHMANN (2010). Ethnomedicinal uses of *Hagenia abyssinica* (Bruce) J.F. Gmel. among rural communities of Ethiopia.

Ecological role of *Hagenia abyssinica* in the AMF

Hagenia abyssinica, being a dominant tree species in AMF ecosystem, has wide range of ecological role that determine the sustainability of afromontane ecosystems.

Soil fertility management: The soil nutrient condition in the tropics in general, and in the afromontane forests in particular, is prone to nutrient deficiency for there is high level of erosion, leaching and overutilization of resources. However, the nutrient deficiency is generally compensated through high rate of nutrient dynamics such that the nutrient absorbed by plants is replaced through litter fall and woody biomass decomposition. Having big crowns that continuously shed its leaf, and the leaf being easily decomposable, *Hagenia abyssinica* is preferred tree species for soil management and agroforestry purposes (GIZACHEW ET AL., 2014).

Biodiversity conservation: Afromontane forests are unique and rare as they are found highly fragmented on isolated mountains of Africa. These ecosystems are home to many endemic wildlife species including chilada baboon and Mountain Nyala (*Tragelaphus buxtoni*). It creates suitable habitats for mammals, birds, insects including bees and other pollinators etc. It can be considered as keystone species for the hydrological regulation.

Hydrological regulation: Growing in the mountain areas, *Hagenia abyssinica* is vital to prevent soil erosion, enhance soil infiltration through its impact on the soil organic matter, maintain soil moisture and enable regulated water flow throughout the year.

Climate change mitigation: Climate change is a big threat particularly in tropical mountains, where it is causing ecosystem shift. Many species in most tropical mountains are adapted to good soil moisture and low temperature condition. Tree species such as *Hagenia abyssinica* are important for climate change adaptation and mitigation in mountain ecosystems.

Recommendation

- ➔ Priority should be given to both *in situ* and *ex situ* -conservation of the species
- ➔ Studies on the current and future condition of the species under climate change scenarios are needed and management of the forests should be based on scientific findings of the studies

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