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Monepenepe (*Cassia abbreviata*): A Medicinal Plant in Botswana

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Abstract: *Cassia abbreviata* commonly known, as Monepenepe in Botswana is a widespread shrub or medium sized tree or shrub belonging to the Caesalpinaceae family. In Africa it grows from Somalia to South Africa. It is important medicine plant utilized by people living in rural and urban areas where it grows. The bark and roots of the plant have medicinal properties that treat different ailment in Botswana and other countries where it grows. Too much cutting of the bark and root digging for medicinal uses has left many trees dead in Botswana. It is therefore recommended that removal of the bark for medicine should be in small pieces and not around the trunk (ring barking) if the tree is to be preserved. This study reviews the characteristics and medicinal uses of *Cassia abbreviata*.

Key words: *Cassia abbreviata*, medicinal, bark, roots, Africa

INTRODUCTION

Farmers extract a variety of non-timber forest products from the forest to consume or sale to generate income. These products include foods, fodder, medicine, spices, dyes, construction materials, fuel wood and utensils. Non-timber forest products are important for food security, health, social and economic welfare of rural communities^[1]. Non-timber forest products are also useful as insect deterrents, fumigants and cosmetics^[2].

The use of plants containing beneficial and medicinal properties have been known and used by man for many centuries. Medicinal plants, which constitute a segment of the flora, provide raw material for use in all the indigenous systems of medicine in Botswana.

Botswana is endowed with a variety of medicinal plants, which grow wild despite the erratic rains. There are several important medicinal plants that are widely harvested and utilised by villagers in Botswana. *Cassia abbreviata* commonly called Monepenepe is one of common used medicinal plants in Botswana.

Distribution: *Cassia abbreviata* is wide spread in the tropics^[3]. In Africa it is found in dry thorn bush and woodlands from Somalia to South Africa at altitude of between 220 and 1520 m above sea level^[4,5]. It is found growing mostly in open woodland and wooded grassland, along rivers on hillsides and frequently associated with termite mounds^[6]. In Botswana it grows mostly in the north-east^[6] on termite mounds and in all kinds of woodland.

Plant description: *Cassia abbreviata* is a shrub or small to medium sized tree belonging to the Caesalpinaceae family^[4,7]. It is deciduous with a neat rounded crown, growing to a height of 3 to 10 m (Fig. 1a) and rarely reaches 15 m^[4]. The trunk is straight and the bark is rough, grey-brown, fissured and flaking^[6,8]. The bark is subdivided into broad prominent ridges^[9].

The leaves are evenly compound with 5-12 pair leaflets per leaf (Fig. 1b). The leaflets are medium-large, oblong, thin and marginally entire^[5,9]. The leaves are green when new in early autumn and less striking as they mature (Fig. 1b). Flowers are pea-like, single, yellow and clustered in masses at the end of the branches^[8]. They appear at the same time with new leaves^[8] or just before leaves^[7]. The masses of flowers make a striking display and last for 4 to 6 weeks. Flowers appear from September to October and fruits from December to April^[10].

The fruits are long up to 80 cm thin and cylindrical (Fig. 1b). The pods ripen nearly a year after flowering^[4,6,9]. They remain on the tree for long periods and dehisce on the tree after seeds are mature (Fig. 1c). When the pod is dry seeds can be shaken out and the pod breaks up. The wood is fairly heavy (air-dry 900 kg m⁻³) hard and coarse in texture^[9,10]. The wood has pale brown sapwood and dark brown coarse-grained heartwood with pale blotches^[9]. The wood works easily, however the living wood is damaged by borers^[10].

Economic uses of *C. abbreviata*: The tree has some important economic and medicinal uses appreciated by people living in rural and urban areas of Botswana.



Fig. 1a: *Cassia abbreviata* tree



Fig. 1d: *Cassia abbreviata* seedling growing in a tree nursery



Fig. 1b: *Cassia abbreviata* leaves and pods



Fig. 1e: *Cassia abbreviata* tree dug and ring barked for medicinal purposes



Fig. 1c: *Cassia abbreviata* pods dehisce on the tree after seeds are mature

substance responsible for lowering high blood pressure^[13]. The bark is extracted by boiling with cattle urine and water and the extract is used as a purgative^[14]. The decoction of the roots is used against fever of gonorrhoea, pneumonia, chest pains, uterine pains and stomach troubles^[5,7]. The roots are also taken orally for suspected syphilis^[14]. A warmed-up cold infusion of the root is held in the mouth for toothache^[5]. The fluid extracts of the root has proved to be cardiotoxic, diuretic and diaphoretic in pharmacological experiments^[15] Extracts from roots and bark are used to treat bilharzias^[7] and black-water fever^[7,11] A commercial extract has been marketed for treating black water fever. Smoke from burning twigs is inhaled to cure headaches^[5,7].

Medicinal uses: The tree provides medicine, which treat many ailments^[4,11]. Both the bark and roots are used for medicinal purposes in Botswana. The bark is used to treat ailments such as headaches, diarrhoea, constipation and skin diseases. Powdered bark is used for dressing ulcers. A decoction of stem bark is used as a malaria remedy^[12]. The stem bark contains histamine or chemically related

Other uses: The young branches and leaves are eaten by elephants, giraffe and kudu^[3,10]. Crushed leaves are believed to drive snakes from homes^[3]. Monkeys and baboons eat pods^[7] and the seeds by brown-headed parrots^[8]. The seeds are also sucked as tonic^[5,7]. Local people believe that eating meat cooked over the bark of

C. abbreviata result in successful hunting. In warmer *C. abbreviata* is a good ornamental tree^[5,7,16]. The tree has been planted along driveways creating a bright avenue during the flowering season^[10]. The wood of *Cassia abbreviata* is used as firewood^[4,5]. The tree produces good timber for furniture and joinery^[4,5].

Propagation and management: The species can be propagated from seedlings in the nursery (Fig. 1d) and wildlings^[4,5]. *Cassia abbreviata* has many seeds (15,000 seeds kg⁻¹)^[5]. Germination of fresh seeds is good and fast without any pre-treatment^[5,7]. In Botswana seeds have been soaked in water overnight and sown the following day in a mixture of river sand and leaf mould or compost. Fresh seeds are able to germinate after 10 days although older seeds might take a long time to germinate. It is difficult to find viable ripe seeds in the wild as they are normally infested by parasites. Fresh seeds can be stored for a long time kept dry and free from insects^[5]. *C. abbreviata* develops a long taproot from quite early. The growth rate is about 70 cm per year^[10]. The tree is drought resistant^[7] however; young trees are susceptible to frost damage^[7,9,10].

Performance in an agroforestry system: The species has not been introduced in any formal agroforestry system. However, wildlife such as elephants, kudu and giraffe eagerly feeds on young branches, twigs and leaves. Monkeys and baboons eat the pods and brown-headed parrots eat seeds. The tree provides bees with forage during its flowering season.

CONCLUSIONS AND RECOMMENDATION

It has been observed that too much cutting of the bark and root digging for medicinal uses (Fig. 1e) has left many trees dead in Botswana and the tree may become extinct. Removal of the bark should be in small pieces and not around the trunk (ring barking) if the tree is to be preserved. People should be encouraged to plant few trees in the homesteads for their uses as a way of reducing pressure on trees growing in the wild.

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