



Short Communication

Exploring the Medicinal Efficacy, Properties and Therapeutic uses of *Spondias mombin* (Linn)

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Abstract

The main purpose this research review is to evaluate the medicinal values, efficacy, properties and therapeutic uses of medicinal plant *Spondias mombin*. *Spondias mombin* is one of the medicinal plants used in African traditional medicine in the treatment of different infectious diseases in West African, Nigeria to be précised, ranging from eye infection, skin infection like ringworm, ezema and wound healing. Some school of thought in the scientific world discovered that *Spondias mombin* mat be used to cure infection related to male and female reproductive organ, infection like gonorrhoea and syphilis. It has been profounded theory by some notable scientist, *Spondias mombin* may be used in the treatment of breast cancer, for this mentioned scientific facts about *Spondias mombin*, the medicinal plant efficacy, properties and therapeutic uses, should be evaluated.

Keyword: Medicinal Efficacy, Properties and Therapeutic index, *Spondias mombin*

Introduction

Bentham and Hooker (1877) [1] were the first to formulate groupings of genera in the *Anacardiaceae*, dividing the family into two tribes, the *Anacardieae* and *Spondieae* [sic]. Subsequently, [2] published the tribe Spondiadeae (as *Spondieae*) and was the first to formulate a relatively modern concept of *Spondias*, in which he included *Evia Blume*, *Cytheraea Wight & Arn.*, and *Wirtgenia Jung. ex Hassk. (nom. illegit., non Wirtgenia Sch. Bip.)*. On the other hand, of the taxa he either accepted in *Spondias* or recognized as synonyms of species in the genus.

Moreover, *Spondias mombin* was one of the first genera of *Anacardiaceae* described by Linnaeus. Inexplicably, he later published two names homo-typic with *Spondias mombin* (and therefore illegitimate, *Spondias myro balanus* and *Spondias lutea*, He published the name *Spondias myrobalanus* a second time, in *Flora jamaicensis*, in this instance an illegitimate homonym homotypic with *Spondias purpurea*. The syntypes for the latter *Spondias myrobalanus* served as the basis for *Spondias purpurea*, for which [3] selected a lectotype. Generic limits and definitions in the *Anacardiaceae* have been re-drawn

several times during the past century and still need some work; revision of *Spondias mombin* has required further re-examination of sub family *Spondioideae* [4] and a few possible additional segregate genera.

Furthermore, Other common names, according to [4] are Bala (Costa Rica), Jobito (Panama), Jobo blanco (Colombia), Jobo corronchoso (Venezuela), Hoeboe (Surinam), Acaiba, Caja, Pau da tapera (Brazil), Ubo (Peru), Hobo (Mexico), Iyeye (Yoruba), Uvuru (Igbo). *Spondias mombin* is a fructiferous tree having habitat in Nigeria, Brazil and several other tropical forests. This plant is common found around us in South/West of Nigeria (Yoruba) and it is commonly used in traditional medicine as mentioned above. *Spondias mombin* Linn belongs to the family of *Anacardiaceae* [5]. *Spondias mombin* is a tree to 30 m high; bark greyish-brown, thick, rough, deeply grooved, with blunt, spine-like projections; trunk with branches 2-10 m above ground level to form a spreading crown up to 15 m in diameter and forming an open or densely closed canopy, depending on the vigour of the individual; seedlings with deep taproot, probably persisting in mature tree, which also possesses a shallower root system near the surface. Leaves alternate, once pinnate with an odd terminal leaflet [5] stipules absent; rachis 30-70 cm long; leaflets 5-10 pairs, elliptic, 5-11×2-5 cm; apex long acuminate, asymmetric,

truncate or cuneate; margins entire, glabrous or thinly puberulous [6]. Inflorescence a branched, terminal panicle with male, female and hermaphrodite flowers; sepals, shortly deltoid, 0.5-1 cm long; petals, white or yellow, oblong, 3 mm long, valvate in bud, becoming reflexed; stamens 10, inserted beneath a fleshy disc; ovary superior, 1-2 mm long; styles 4, short, erect. Fruit an ovoid or ellipsoid drupe, 3-4×2-2.5 cm in diameter; dull light orange to yellow or brown; in clusters of 1-20; epicarp thin, enclosing a juicy orange or yellow mesocarp 3-6 mm thick; endocarp large, with a soft, fibrous, grooved coat surrounding 4-5 small seeds [7,8]. It grows in the rain forest and coastal area and the trunk has deep incisions in the stem bark, which often produces a brown resinous substance. The trunk and bark are gray, and sometimes have distinctive bur, blunt spines. The leaves and flowers were at the end of the branches. Before the tree starts to flower, it strips itself from most of the leaves sometimes between the month of July and September. In other words, it can be classified as a plant that thrives in between the mid of the year. The leaflets are opposite except for the terminal ones. Particularly on young plants, the leaf stalk tends to be reddish towards the outer leaflets. Crushed leaves have faint turpentine-like smell/odour [7]. The fruit approximately 1½-inch long oval yellow plum. It has a leathery skin and a thin layer of fruit pulp with a very exotic taste and most of the time tasted like Vitamin C. It hangs in numerous clusters of more than a dozen or more on the tree. Very rich in vitamins B1 and C, the fruit mostly exists as an oval seed [8].



Figure 1: The whole tree of *Spondias mombin*.

Flowering occurs between the month of July and September. Fruiting usually starts at about 5 years of age, although well-kept cuttings may produce earlier. *Spondias mombin* occurs in a great variety of humid tropical climates, often in secondary vegetation derived from evergreen lowland forest and semi-deciduous forest. It has been introduced to most tropical locations and performs well under harsh conditions and the tree is tolerant of most soil types and rainfall patterns.

Spondias mombin is severely damaged by freezing temperatures [8]. The pulp of the fruit is sometimes eaten directly, but is too acid to be considered attractive; it can also be boiled or dried. It is especially used for local cough syrup, ice cream, drinks and jellies. Juices improve with keeping overnight as the mild astringency of the fresh fruit disappears. Fermented products

are also good. About half of the fruit weight is pulp, which is 8% water, 10% sugars, 1-8% fiber, and 0.4% ash. The sugars give about 40 calories/100 g. The fruit is a good source of vitamins A and C; vitamin C carotenoids and flavonoids are present in reasonable concentrations this may be referred to as, the Nutraceuticals. There is great variation in fruit quality from region to region, some being sweet and pleasant and others quite disagreeable in flavor [9].



Figure 2: The Stem bark portion of *Spondias mombin* tree.

Moreover, the fruits are edible and sometimes called monkey-plum, but the wood is of low quality and seldom used. The yellow *mombin* is less desirable than the purple *mombin* and it is appreciated mostly by children as a means of alleviating thirst. Ripe fruits are eaten out-of-hand and stewed with sugar. *Spondias mombin* extracted juice is used to prepare ice cream, cool beverages and jelly in Costa Rica and Brazil. It is used in Panama and Mexico in fairly large quantities as jams. In Amazon, the ripe fruit is used mainly to produce wine and in Guatemala, the ripe fruit is made into a cider-like drink. In Mexico, Mexicans pickle the green ripe fruits into vinegar and eat them like olives with salt and chili, as they do with unripe purple *mombin*. The *Spondias mombin* tree exudes a gum that is used as glue [9]. The *Spondias mombin* wood is yellow or yellowish-brown with darker markings, light in weight, buoyant, flexible and prone to attack by termites and other pests.

It is much used in carpentry, for match sticks, match boxes, physician's spatulas, stick for sweet meats, pencils, pen-holders, packing cases, interior sheathing of houses and boats and as a substitute for cork. It is not suited for turnery and does not polish well. In some African country, the woody tubercles on the trunk are cut off and used for bottle stoppers and to make seals for stamping sealing wax. In tropical Africa, saplings serve as poles for huts, branches for garden poles and for axes and hoe handles. In Costa Rica and Puerto Rico, the wood is employed only as fuel. Ashes from the burnt wood are utilized in indigo-dyeing in Africa [10].

The Stem bark of *Spondias mombin* is used popular for carving amulets, statuettes, cigarette holders and various ornamental objects. Portable water can be derived from the roots of *Spondias mombin* in time of emergency. The flowers worked intensively by honeybees early in the morning [9,10].

The fruit juice of *Spondias mombin* is drunk as a diuretic and febrifuge. The decoction of the astringent Stem bark serves

as an emetic, a remedy for diarrhea, dysentery, haemorrhoids and a treatment for gonorrhoea and leukorrhoea. *Spondias mombin* is believed to expel calcifications from the bladder in case there is a bladder infection. The powdered of Stem bark of *Spondias mombin* is applied on wounds in case the is wound infection especially during African tradition treatment of infection. A tea made from the flowers and leaves of *Spondias mombin* extract is taken to relieve stomach ache, biliousness, urethritis, cystitis and eye and throat inflammations [10].

Spondias mombin leaves juice and the powder of dried leaves are used as poultices on wounds and inflammations [11]. The gum is employed as a cough expectorant and to expel tapeworms [12-15]. Concerning the popular use of this plant, the leaves were mentioned in the literature as abortifacient [16], anti-microbial [17], anti-viral [18], Vitamin C [19]; Wound-healer [20]; but this healing effect could not be confirmed by [21-22] reports the several uses of the plant based on oral communication and not on any recorded scientific investigation.

Morphological part	Non-Medicinal Uses	Reference
Root	It is used for emergency water source	[23]
Stem	Living fences in farm land. Shelter by artisans and has low quantity wood	[24]
Wood	In carpentry for match sticks, match boxes, physicians' spatulas, stick for sweet, meats, pencils, pen-holder, racking cases, interior sheathing of homes and boats and as a substitute for cork. In Brazil, used as bottle stoppers and to make seal wax.	[25]
Wood Ashes	In Africa, it is used as indigo-dye	[26]
Back	It is used in carving figures like amulet, statuettes, cigarette holder and various ornamental objects and also as dyeing agent.	[27]
Gum	Used as Glue	[28]
Leaves	The young leaves are cooked as green vegetable.	[29]
Fruit	Edible – eaten out of hand in stewed with sugar, extracted to prepare ice-cream, cool beverages and jelly. It is used as jam; it is also used as wine, pickle the green fruit into vinegar. It is widely valued as feed for cattle and pig.	[30]
Flowers	It is used for decoration.	[31]
Nectar	It is worked on intensively by honey bees .	[32]

Table 1: Local Uses of *Spondias mombin*.

Morphological Part	Medicinal Uses	Reference
Root	Decoction as purgative.	[25]
Back	Decoration as emetic, a remedy for diarrhea, dysentery, hemorrhoids and a treatment for gonorrhoea. In Mexico, it is used to expel calcification from the bladder, powder for healing wounds.	[26]
Gum	Expectorant and to expel tapeworm.	[25]
Leaves	Tea with flower relieves stomach ache, biliousness, inflammation. Decoction of the young leaves is a remedy for diarrhea and dysentery. Juice of crushed leaves and powder of dried leaves on wounds and inflammations and abortifacients,	[26]
Fruit	Juice drink as diuretic and febrifuge .	[27]
Flower	Tea with flower relieves stomach ache, biliousness, urethritis, cystitis and eye and throat inflammation .	[28]

Table 2: Medicinal Uses of Different Morphological Parts of *Spondias mombin*.

All parts of the *Spondias mombin* tree are medicinally important in traditional medicine. The fruits decoction is drunk as a diuretic and febrifuge, the decoction of the Stem bark and the leaves as emetic, anti-diarrhoea and used in the treatment of dysentery, haemorrhoids, gonorrhoea and leukorrhoea. The antimicrobial, antibacterial, antifungal, and the antiviral properties of *Spondias mombin* have been reported [29-30].

Spondias mombin tea of the flowers and the leaves is taken to relieve stomach ache, various inflammatory conditions and wound healings [31-33] have also reported the abortifacient activity of the aqueous extract. Preliminary reports suggest that the phenolic acid, 6-alkenyl-salicylic acid from *Spondias mombin* are responsible for the antibacterial and molluscicidal of this plant extract [34]. In another study, the anacardis acid derivative from the hexane extract of the plant was showed to possess beta lactamase inhibitory properties [35].



Figure 3: *Spondias mombin* tree with developing fruit and leave.

Conclusion

Spondias mombin is one of the best medicinal plant that has a very high medicinal value becomes a viral toot in the production of new and novel antibiotics in the pharmaceutical world, because of its various therapeutically advantageous against infectious e organism. More research should be encouraged on *Spondias mombin*. this will help us to totally eradicate the recalcitrant infection like HIV, Breast cancer, liver infection just to mention a few. Indeed, *Spondias mombin* is a magic bullet for infectious diseases.

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