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A review on areca catechu plant

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Abstract
Areca catechu L. is a species of palm which grows much of tropical Pacific, Asia, and parts of Africa. The palm is believed to have originated in the Philippines and is widely cultivated in several South Asian and Southeast Asian countries. The seeds of areca nut have been widely used in clinical practices. Areca nut has an important place in the ancient Indian system of medicine such as Ayurveda, Unani and Homeopathy. It is traditionally used in a number of ailments for its Laxative, Digestive, Carminative, Antiulcer, Antidiarrhoeal, Anthelmintic, Antimalarial, Antihypertension, Diuretic, Antibacterial, Hypoglycemic, Antiheartburn activities. Areca leaves also gives Antidiabetic and Antinociceptive activity. Traditional use of the plant for medicinal properties is to be documented for their possible use as future medicines or drugs. There is a need for identifying native natural plant sources to acquire to their recognized medicinal properties, which may widen them to use as new therapeutics for various diseases. In the present article, it has been described about usefulness of arecanut as an herbal drug and its therapeutics application prospects.

Keywords: *Areca catechu*, morphology, pharmacological activities, antimalarial, antihypertension

Introduction
Traditional use of medicines is recognized as a way to learn about the potential of future medicines. Its fruit or seed is also called areca nut or 'Supari'. It has a characteristic astringent and slightly bitter taste [2]. In most parts of India, areca nut is marketed after processing. One type of areca nut is 'Red Supari'. It is obtained by boiling and drying unripe dehusked nuts at different stages of maturity. The other type is 'White Supari' which is obtained by mere drying of ripe nuts and dehusking later on [3]. Recently, the medicinal uses and properties of areca nut were investigated. It has [4], Anti-depressant [5], Anthelmentic [6], Aphrodisiac [7], Hepatoprotective [8], Cytoprotective [9], Anti-tumor [10], Analgesic [11], Antioxidant, Antidiabetic [12], Hypolipidemic [13], Antihypertensive [14], Anti-migraine [15], Antiulcer [16], Wound healing [17], Learning and Memory improvement [18], Anti-aging [19], Anti-malarial [20], etc. In spite of all these medicinal values of areca nut, its chronic consumption or chewing may cause several adverse effects including carcinogenesis [21, 22].

Taxonomical classification
- Kingdom : Plantae
- Order : Arecales
- Family : Arecaceae
- Subfamily : Arecoideae
- Tribe : Arecae
- Subtribe : Arecinae
- Genus : Areca
- Species : *Areca catechu*L

Local names:
- Marathi : Supari
- Hindi : Supari
- Sanskrit : Puga
- Malayalam : Adakka
- Kannada : Adakka
- Malay : Pinang [23]
- Gujarati : Supari
- Tamil : Kamugu
- Bengali : Supari
- Telgu : Pokavakka
- English : Betel tree [1], Supari palm, Pinang Palm

Morphology of plant [24]
Areca nut is an erect, unbranched palm reaching heights of 12-30 m, depending upon the environmental conditions.

1. Stem [25]

Fig 1: Stem of *Areca catechu*

The stem, marked with scars of fallen leaves in a regular annulated form, becomes visible only when the palm is about 3 years old. Girth depends on genetic variationand soil conditions.

2. Roots [26]
Root system is adventitious, typical of monocots.

Fig 2: Roots of *Areca catechu*

3. Leaves [27]

Fig 3: Leaf of *Areca catechu*

The adult palm has 7-12 open leaves, each with a sheath, a rachis andleaflets. The leaf stalk extends as the midrib until the end of the leaf andends as leaflets.

4. Flowers [28]

Fig 4: Flower of *Areca catechu*

Male flowers very numerous, sessile, without bracts; calyx 1-leaved, small, 3-cornered, 3-parted; petals 3, oblong, rigid striated; stamens 6, anthers sagittate. Female flowers solitary or 2 or 3 at or near the base of each ramification of the spadix, sessile, without bracts; sepals permanent; staminodes 6, connate, styles scarcely any; stigmas 3, short, triangular.

5. Fruit [29]

Fig 5: Fruits of *Areca catechu*

Fruit a monocular, one-seeded berry, 3.8-5 cm long, smooth orange orscarlet when ripe, with a fibrous outer layer. The generic name is derived from the common name used by the peopleof the Malabar Coast in southwestern India.

Varieties: Varieties of Areca plant are SK local, Sagar, Shriwardhan, Hirehalli, Mangala, Sumangala, Shreemangala etc. [30].

Cultivation and collection [31]

Propagation

Areca nut is only propagated by seed, and while thesame basic requirements are involved, the methods dependon the number of palms desired. Large plantations of Arecanut are grown in India and Taiwan.

Propagation by seed

Seed collection

Areca nut palms are always propagated from mature fruits.The best seed comes from healthy trees with a history ofproducing desirable nuts, Fruits are harvested when bright red or yellow to yellow orange in some regions (such as Guam). Fruits are harvestedeither by climbing the tree and cutting the fruit cluster off or by using a long bamboo pole with a sharp knife attached.Fully mature, heavy fruits that float vertically in water withthe calyx end upward give a high germination rate.

Seed processing

Mature seeds of Areca nut palm are sown as whole fruits.In some places the whole fruit is planted immediately afterharvesting; in others the fruit is dried in sun for 1–2 days; in others the fruits are dried in shade for 3–7 days.

Seed storage

Planting within 7 days after harvesting the fruit

Growing area

Areca nut palm is rarely direct-seeded in the ground. The normal practice is to sow seeds in shaded germination areas, then transplant the germinated seedlings into nurseries for 1–2(–4) years before final planting out in the field. Seeds may be sown in groups of 20–50 in shallow pits, 2.5cm (1 in) apart and covered with sand; in rows 15–22 cm (6–9 in) apart; or tied up in plantain leaves in rich moist soil and germinated.

Germination

Germination is completed about 90 days after sowing, at which time the seedlings have one bifid (forked) leaf and five roots. The germination rate is usually over 90%.

Time to out planting

At 12 –18 months of age, seedlings are transplanted into the field at the start of the wet season. The hole should be at least 50 cm (18 in) deep and 50 cm (18 in) wide. The bottom portion of the hole should be filled with a mixture of 2.3–4.6 kg (5–10 lb.) of organic matter in the form of compostor composted chicken manure, one-half pound of fertilizer rich in phosphorus, such as 10:30:10, and top soil. Deep planting Seedlings at a depth of 90 cm (3 ft.) allows for gradual piling of earth around the trunk base; the covered nodes produce adventitious roots resulting in firmer anchorage and larger root volume. Out planting is carried out in the rainy season unless irrigation is available to assure a steady water supply during establishment.

Pharmacological Activities

1) Antibacterial Properties [32]
2) Anti-inflammatory [36]
3) Anti-Melanogenesis [37]
4) Anticonvulsant Activity [38]
5) Clastogenic Activity [39]
6) Antihypertensive [40]
7) Anti-HIV activity [41]
8) Anti-venom activity [43]
9) Antioxidant Activity [44]
10) Anti-fertility Activity [45]
11) Prevention of Dental Cavities [47]
12) Hypolipidemic [48, 50]
13) Hypoglycemic activity [51]

Conclusion

The extensive survey of literature revealed that Areca is animportantplant and has been widely studied for their various Pharmacological activities like, Antidiabetic, antioxidant activity, anticonvulsant activity, antifertility, and Antivenom activity etc. In developing countries like India and Africa where both *Areca catechu* and AIDS are ubiquitous, it could bring enormous hope to the suffering and it can be advocated as a dietary aid. Further, the use of *Areca* by both male and female persons opting for future conception should account the antifertility activity. It is also important to recognize that *Areca catechu* extracts may be effective not only when used singly, but may actually have a modulating effect when given in combination with other herbs or drugs. That further studies are required to know the underlying mechanisms and type of biochemical compounds involved in this beneficial effect and, it would enable for utilization in modern medicine. This review aims to highlight the main medicinal properties of *Areca catechu* with a view to focus onfuture studies of this plant.

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