



A new species of betel nut palm (*Areca*: Arecaceae) from western New Guinea

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Abstract

A new species of betel nut palm, *Areca unipa*, is described and illustrated here for the first time. This is the second species of *Areca* from New Guinea that is closely related to the widespread, cultivated species *A. catechu*. A discussion of its morphological characters, distribution, ecology, habitat, uses and conservation status is provided.

Key words: Arecaceae, Palmae, palms, New Guinea, taxonomy

Introduction

Botanical exploration in New Guinea continues to yield novelties, even in the well-known groups of plants such as palms. Since the Palms of New Guinea (PONG) Project (Baker 2002) was initiated in 2000, more than 50 new species have been described (e.g. Baker & Heatubun 2012, Baker *et al.* 2006, Banka & Baker 2004, Banka & Barfod 2004, Barfod & Heatubun 2009, Dransfield *et al.* 2000, Heatubun 2008, Heatubun & Barfod 2008, Heatubun *et al.* 2009) and at least one new species has been discovered on almost every field trip. Here we describe a new species of the betel nut palm genus *Areca* (Arecaceae), which has been lately discovered in New Guinea despite the recent completion of a monograph of the genus in East Malesia (Heatubun *et al.* 2012).

Taxonomic Treatment

Areca unipa Heatubun, *sp. nov.*

Type:—INDONESIA. West Papua Province: Maybrat Regency, East Aifat District, Ayata village, PT. Bima Cakrawala Nusantara Mining Concession Area, 200 m elev., 1°17'08.66" S, 132°37'28.02", 17 July 2011, *Iwanggin & Simbiak* 138 (holotype MAN!, isotype K!).

Diagnosis:—This new species is similar to *Areca catechu* L. and *Areca mandacanii* Heatubun in habit and inflorescence structure, but differs by having fewer leaves in the crown, by the slender leaf rachis and relatively long petiole, and the sigmoid multifold leaflets and broadly wedge-shaped terminal leaflets.

Solitary, slender palm tall up to 12 m high. Stem ca. 7.5 cm diam.; internodes 3–16 cm long, leaf scars 1–1.5 cm wide, not conspicuous, green near crown and dark to brownish grey near the base. Leaves 7 in crown, pinnate, ca. 119 cm long (including petiole); sheath tubular, ca. 54 cm long and ca. 7 cm wide, smooth, not fibrous, shiny cream to light green become dull green; crownshaft well defined, up to 75 cm long and up to 7 cm diam.; petiole ca. 16.5 cm long, slightly channelled adaxially, rounded abaxially; rachis slender, ascending but not arching, with adaxial longitudinal ridge, rounded abaxially; 9–10 leaflets on each side, more or less regularly arranged, spaced by 9–15 cm, basal leaflets ca. 42 × 1–4 cm, with 3 folds, sigmoid, middle leaflets

Etymology:—The specific epithet refers to the acronym of Universitas Papua (the State University of Papua—UNIPA). This new species is named in celebration of the 10th anniversary of Universitas Papua and formalizes its nickname “*pinang unipa*”.

Discussion:—Prior to the discovery of this new taxon, three species of *Areca* were known from New Guinea (Heatubun, 2008; Heatubun *et al.* 2012). The most widespread species, *A. macrocalyx* Zipp. ex Blume (1839: 75), is highly variable and some forms are superficially similar to *A. unipa* in vegetative morphology. However, *A. macrocalyx* has highly distinctive reproductive structures that are quite unlike *A. unipa*. Its inflorescence is protogynous, branched to one order (rarely two orders) and bears numerous (up to 600), closely spaced, slender, sinuous rachillae. Pistillate flowers occur only at the very base of the rachillae, the remaining portion bearing purely staminate flowers and drying and falling after anthesis. The maturing infructescence becomes congested with fruit, appearing spicate or club-like. None of these features correspond with *A. unipa*.

Areca unipa is most similar to *A. catechu* Linnaeus (1753: 1189) and *A. mandacanii* Heatubun (2008: 199) in its solitary, moderate tree palm habit and inflorescence structure, but it can immediately be distinguished by the small, slender leaves with relatively long petiole and very few multifold, sigmoid and broadly wedge-shaped leaflets. In contrast, *A. catechu* bears larger leaves with petiole short or almost lacking and single and/or multi-fold, linear leaflets, while *A. mandacanii* bears single-fold, linear leaflets that are arranged irregularly in groups and in several ranks. Besides that, this new species is smaller in almost all dimensions than *A. catechu* and *A. mandacanii*. For instance, *A. unipa* has seven leaves in the crown, a leaf about 102 cm long, 9–10 leaflets on each side of rachis, and inflorescence that is 30–40 cm long and branched to 2 orders. *Areca catechu* has 8–12 leaves in the crown, the leaf is 150–270 cm long with 20–35 leaflets on each side of rachis, and the inflorescence is 29–80 cm long and branched to 2–3 orders. *Areca mandacanii* has 8 leaves in the crown, the leaf is 200–250 cm long with about 60 leaflets each side of rachis, and the inflorescence is about 60 cm long and mostly branched to 2 (rarely 3) orders.

Though distinct, *A. unipa*, like *A. mandacanii*, is closely related to *A. catechu*, in its inflorescence architecture (divaricate panicle inflorescence with elongated branches and rachillae), the distichous floral clusters with only complete triad including female flower occurring at the base of each rachilla, the free sepals of staminate flowers (or sometimes fused at the base), six stamens and typical betel nut-like fruits. The discovery of yet another relative of *A. catechu* draws further attention to New Guinea as a potential area of origin for *A. catechu* as already highlighted by Heatubun *et al.* (2012). It is of great concern that this wild relative of an important crop species is so intensely threatened in its natural habitat.

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