

Notes on the Genus *Acanthococos*

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Several recent authors (Moore 1973; Dransfield and Uhl 1986; Uhl and Dransfield 1987) have listed the South American cerrado palm genus *Acanthococos* Barbosa Rodrigues as synonymous with the more widespread *Acrocomia* Martius without formal transfer of the type species. In addition, little or no discussion of the reasons behind this reduction nor of the relationships of the genus and its component species has been offered. Current work on the taxonomy of Paraguayan palms (Hahn 1990, in prep.) has required an examination of the genus and its three described species.

The type species, *Acanthococos hassleri*, was described by Joao Barbosa Rodrigues in 1900 based on a collection of Emil Hassler from Ype-hu in eastern Paraguay and illustrated with a colored plate in Barbosa Rodrigues' *Sertum Palmarum Brasiliensium* (1903). In the original publication, Barbosa Rodrigues speculated about the affinities of the newly described taxon concluding that it was intermediate to *Bactris* N. J. Jacquin and *Syagrus* Martius (under the then broadly defined *Cocos* L.) citing the presence of spines, free petals in the pistillate flowers, and what he took to be basal endocarp pores. This latter feature is anomolous for a spiny member of the *Cocoeae*. The non-spiny members of the tribe are variable in pore placement with a basal position most frequent (Uhl and Dransfield 1987). An examination of material from the type locality and numerous additional specimens from throughout the range of *Acanthococos*, however, shows an equatorial rather than basal position for the endocarp pores.

In the later publication (1903), Barbosa Rodrigues subdivided the "tribe" *Cocoinae* Bentham & Hooker (currently recognized as *Cocoeae* Martius) into seven subtribes, *Attaleinae* Barbosa Rodrigues, *Eucocoinae* Drude, *Barbosinae* Barbosa Rodrigues, *Bactrisinae* Barbosa Rodrigues, *Astrocaryinae* Barbosa Rodrigues, *Manicariinae* Barbosa Rodrigues, and *Leopoldiniinae* Barbosa Rodrigues. *Manicariinae* and *Leopoldiniinae* are presently placed as subtribes in the tribe *Areceae*, *Attaleinae* (= *Attaleinae* Drude) is currently recognized more or less intact as a subtribe in the *Cocoeae*, and *Barbosinae* has been united with *Eucocoinae* as subtribe *Butiinae* Saakov (Dransfield and Uhl 1986).

The two remaining subtribes, *Bactrisinae* (with *Acanthococos*, *Bactris*, *Guilielma* Martius, *Martinezia* auctores (= *Aiphanes* Willdenow), *Amylocarpus* Barbosa Rodrigues, and *Desmoncus* Martius) and *Astrocaryinae* (with *Acrocomia* Martius and *Astrocaryum* G. F. W. Meyer), are distinguished from the others by the presence of spines on some or all parts of the plant. These are currently united as subtribe *Bactridinae* J. D. Hooker (Dransfield and Uhl 1986).

No clear characters to differentiate the two spiny subtribes from each other were presented in Barbosa Rodrigues' subtribal descriptions nor in his analytical key (1903). Extracting information from Barbosa Rodrigues' generic descriptions, it would appear that the *Astrocaryinae* are separated by the staminate flowers sunken in pits on the rachillae accentuated by a rim of raised floral bracts. This character, which has been described as "honeycomb-

like" in appearance (Uhl and Dransfield 1987), is clearly illustrated in the color plate of *Acanthococos hassleri* (Barbosa Rodrigues, 1903) though no mention of it is made in the various descriptions of that taxon. The Cuban endemic *Gastrococos* Morales was not mentioned by Barbosa Rodrigues though it also bears the same characteristic rachilla pits.

A second species from the cerrado of Brazil, *Acanthococos sericea*, was described by Burret (1940) based on differences in tomentum and spine density, spine color, and subterranean stem thickness. The author noted the similarities of *Acanthococos* with *Bactris* but differentiated it from that genus based on the free petals of the pistillate flowers. No mention was made of endocarp pore position nor of the rachilla pits.

Toledo (1952) described a third species from Brazil, *Acanthococos emensis*, with two varieties, one each from the States of Sao Paulo (var. *emensis*) and Minas Gerais (var. *pubifera*), based on differences in stem thickness, spine density, length of staminate flower pedicels, and apparent differences in anther shape. His understanding of previously described species was based entirely on published descriptions and illustrations. An examination of specimens shows that stem thickness and spine density tend to be variable characters in both *Acanthococos* and the widespread *Acrocomia aculeata* (Jacquin) Lodd. ex Martius. In addition, basal staminate flowers are pedicellate in both of these taxa while the apical staminate flowers are predominantly sessile.

Toledo (1952) also discussed the taxonomic position of the genus correctly describing the illustrating of the equatorial rather than basal position of the endocarp pores. Based on this observation, he placed the genus in subtribe *Bactridinae* thus correcting the erroneous arguments offered by Barbosa Rodrigues and perpetuated by Dalla Torre and Harms (1907), Pilger

(1908), and Lemée (1929, 1941) who included the genus in the otherwise non-spiny subtribe *Attaleinae*.

Toledo differentiated *Acanthococos* from genera of subtribe *Bactridinae* with sympetalous staminate flowers (*Bactris*, *Guilielma* (= *Bactris*), and *Astryocaryum*) stating that it occupies a position intermediate to these and the choripetalous genera of the subtribe (*Acrocomia*, *Aiphanes*, and *Desmoncus*). He called into question the subtribal separation of the spiny *Cocoeae* into groups by Barbosa Rodrigues pointing out the similarities between *Acanthococos* and *Acrocomia* and between *Astrocarium* and *Bactris*. No mention was made of the choripetalous *Gastrococos*.

Wessels-Boer (1965) mentioned the possibility that *Acanthococos* is synonymous with *Acrocomia* but did not make the new combination due to a lack of access to material.

Moore (1973) merely listed the name as synonymous with *Acrocomia* without additional justification. In *Genera Palmarum* (Uhl and Dransfield, 1987), a work based on Moore's notes, *Acanthococos* was informally placed in synonymy under *Acrocomia*. Justification for this was that the only difference between the two was in habit (p. 519). The generic description of *Acrocomia* in *Genera Palmarum* includes *Acanthococos* and states an equatorial position for the endocarp pores. In the subtribal description and in the key to genera, however, a basal pore position for *Acanthococos* (under *Acrocomia*) is maintained.

Generic boundaries in the *Bactridinae* are fairly well established (Uhl and Dransfield 1987, p. 516) though the relationships of the various genera to each other is still subject to debate. A basic separation of genera into choripetalous and sympetalous genera as per Toledo (1952) would seem to have considerable value though it is difficult to apply to intermediate genera

such as *Gastrococos* and *Aiphanes*. The finely divided and inconsistent system proposed by Barbosa Rodrigues (1903) relies too heavily on similarities in gross structure and ignores many of the detailed features held in common.

In *Genera Palmarum*, no subdivision of the spiny *Bactridinae* is employed though the genera are presented in a sequence of proposed evolutionary advancement. Reduction in number of pistillate flowers and connation of perianth parts, especially in the pistillate flowers, are characteristics considered most important in assessing specialization.

The genus which has been most frequently associated with *Acrocomia*, *Gastrococos*, shares a similar floral arrangement, rachilla chambers, and a connate staminodial ring adnate to the corolla but can be differentiated by the connate sepals of both staminate and pistillate flowers, the pistillate petals distinctly connate basally, the erect filaments with basifixed anthers, and the absence of short mesocarp fibers adherent to the endocarp. The only other choripetalous genus in the subtribe, *Aiphanes*, shares rachilla chambers, free sepals, and a staminodial tube adnate to the corolla, but differs in its praemorse leaflet margins, erect filaments with basifixed anthers, basally connate pistillate petals, and absence of mesocarp fibers. In the sympetalous *Astrocaryum*, similar rachilla chambers and mesocarp fibers are present but the pistillate petals are connate beyond the middle and the staminodial tube is very small and not adnate to the corolla.

Characteristics shared by both *Acanthococos* and *Acrocomia* include a floral arrangement with a few, solitary pistillate flowers at the base with numerous paired or solitary staminate flowers toward the apex, distinctive rachilla chambers, free sepals of both staminate and pistillate flowers, filaments inflexed in bud with dorsifixed anthers, free or only very partially connate pistillate petals, adnation of the

staminodial tube to the corolla, and abundant, short mesocarp fibers. With the correction of the erroneous original observation of endocarp pore position, the large number of similarities between the two genera justify placement of *Acanthococos* in synonymy under *Acrocomia*.

Due to the abundance of edible and industrial quality oil in the mesocarp and endosperm (Balick 1979, Lleras 1985), the genus *Acrocomia* has been the subject of considerable biosystematic and evolutionary study (e.g., Scariot 1987). The taxonomy of the genus, however, remains uncertain (Uhl and Dransfield 1987). Earlier workers (i.e., Bailey 1941, Glassman 1982) maintained the genus with a large number of species mostly based on narrow, typological definitions. Recent work concerning the systematics of neotropical palms, however, supports rather broad species concepts for many groups, particularly those which have been exploited by man or which occur in environments influenced by local human populations (Balick et al. 1987a, b; Anderson and Balick 1988). As the genus *Acanthococos* occurs in areas of frequent fire or tilling (Eiten 1963, 1972), these observations suggest that the three described species of *Acanthococos* are merely minor deviations of but one, somewhat variable species.

The northeastern corner of Paraguay has produced a number of unusual and apparently endemic taxa and is without doubt the most floristically diverse region of the country. Several of these taxa, however, were based on incomplete material or inaccurate interpretation of structures as in the case of *Schrankiastrum* Hassler (Barneby 1984). A similar situation appears to be present in *Acanthococos* in which the misinterpretation of endocarp pore position led to an improper taxonomic alignment of the genus. After clarification of this problem, lack of additional work on this and related genera left proper affinities obscured. Overemphasis of relatively minor

variations in morphology and maintenance of typological species concepts led to inflated taxonomies and further obscured taxonomic relationships.

In light of the above arguments, I make the following new combination and unite in synonymy the two species of *Acanthococos* described after the type species, *A. hassleri*.

***Acrocomia hassleri* (Barbosa Rodrigues) Hahn, comb. nov.**

Acanthococos hassleri Barbosa Rodrigues, *Palmae Hasslerianae Novae* 2. 1900. Syntypes: Paraguay, Ape-hu Hassler 4957, 5224 (presumably destroyed). Neotype: Paraguay, Yhu (Holotype: G).

Acanthococos sericea Burret, *Notizblatt* 15: 109. 1940. Type: Brasil, Mato Grosso. *Archer & Gehrt* 36432. (Holotype: SP; isotype: US).

Acanthococos emensis Toledo, *Archivos de Botanica do Estado de Sao Paulo, Nova Serie* 3: 4, t. 1-2. 1952. Type: Brasil, Sao Paulo. *M. Rachid* 52, 941. (Holotype: SP).

Acanthococos emensis var. *pubifolia* Toledo, l.c. 3: 5. 1952. Type: Brasil, Minas Gerais. *L. Labouriau* 53, 727. (Holotype: SP).

The species is distributed sporadically throughout the Planalto of Central Brazil from the Sierra de Amambay in north-eastern Paraguay to western Bahia and is locally common in cerrado vegetation. (Medeiros-Costa and Panizza 1983).

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CHAPTER NEWS AND EVENTS

New Journal for Temperate Zone Enthusiasts: *The Hardy Palm*

The Pacific Northwest Palm and Exotic Plant Society, an affiliated chapter of the IPS, has resumed publication of a Chapter Newsletter to meet the needs of Temperate Zone palm enthusiasts. *The Hardy Palm* carries articles of interest to palm hobbyists in colder regions. The editor is Nick Parker. *The Hardy Palm* averages 16-24 pages (5.5 by 8.5 inch size) and will be issued quarterly. Interested parties from other cold weather climatic zones are invited to subscribe. Subscription rates are US \$12 per year for United States IPS members and Cdn \$15 per year for Canadian members and Cdn \$19 (or US \$15.00) for mailings outside North America. Checks in US or Canadian currency payable to The Pacific Northwest Chapter, IPS, should be sent to Frank Hanaus (Canada) or Nick Parker (Canada). Articles and materials suitable for publication are also solicited and should be sent to Nick Parker, Editor (see roster).

NEWS OF THE SOCIETY

The IPS has lost three well known and influential members during the past few months. Obituaries for one of them, Hans Hoffmann, is given here. We will have articles on Ruth Shatz and Dr. Anthony Davis in October.—*eds.*

Pacific Northwest Chapter Meetings

The Pacific Northwest Chapter of the IPS held their Second General Meeting for 1991 on Tuesday, May 28, 1991 at the VanDusen Gardens in Vancouver, B.C., Canada, with guest speaker Gert Vander Meulen discussing the latest in greenhouse construction. The Third and Fourth 1991 General Meetings will be held on Mondays, August 26 and November 25, respectively, at the same venue. The group's third annual Palm Society BBQ will be held in July. Also plan to visit the Palm Society Booth at the PNE between August 18 and September 2, 1991.