

Facing global markets – usage changes in Western Amazonian plants: the example of *Euterpe precatoria* Mart. and *E. oleracea* Mart.

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Abstract

Palms (Arecaceae) are one of the most important families of useful plants, and indigenous societies have developed very distinct ways of utilizing this resource. The clonal *Euterpe oleracea* Mart. has long been used for the preparation of frothy beverages in the eastern Amazon, in particular by colonists and caboclos, but to a much lesser extent by the indigenous population. *Euterpe precatoria* Mart., which grows in the western Amazon, is traditionally reported as resource for construction and thatch, but not as important species in alimentation. Our recent work indicates that the use of both species has dramatically shifted in the recent past. Prices for *Euterpe* products have increased dramatically due to the global commodization first of palm hearts and “Açaí berry juice” as nutritional supplement. This is especially evident in western Amazonia: In Bolivia and Peru, where older indigenous informants mostly reported thatch and houseposts as regular use for *E. precatoria* and did not know *E. oleracea*. Younger informants most commonly reported to a large extent on *E. precatoria* being used for the production of palm hearts, but less for other, while the youngest informants in many cases only knew *E. precatoria* fruits as source of beverages, as commercial fruit, and as source for handicrafts, and indicated that *E. oleracea* was being introduced because the species yielded higher harvests. In addition, many mid-age and younger informants reported *Euterpe* sp. as medicinal species, a less frequently mentioned by older informants. The local mestizo population in contrast had a broader distributed knowledge with regard to “food” uses of *Euterpe* sp., and mentioned the species as source of construction material less frequently.

Keywords: Açaí, *Euterpe*, ethnobotany, Amazon, plant use, cultural change, globalization

Introduction

Palms (Arecaceae) are one of the most important families of useful plants, and indigenous as well as mestizo societies have developed very distinct ways of utilizing this resource. For this reason the family can serve as an excellent tool to depict the change of use knowledge over time, in particular because a considerable number of palm products has entered the global market in recent decades.

Various species of the genus *Euterpe* are widely known under their main vernacular name Açaí. *Euterpe oleracea* Mart. (Fig. 1) is a clonal species that occurs naturally in periodically inundated areas in Northern South America, in particular the Brazilian Amazon, the Orinoco basin, and in coastal swamps of Columbia and Ecuador (Kahn). In contrast *Euterpe precatoria* Mart. (Fig. 2) grows solitary, on tierra firme, and covers much

the same geographic region as the previous species, but occurs also in the western Amazon basin of Peru and Bolivia [1].

The use of *Euterpe oleracea* has long been documented, in particular in Eastern Amazonia. There, the fruits are traditionally immersed in water, mashed, and the resulting frothy mixture is strained and drunk, or added to rice or cassava (*Manihot esculenta*) flour. This can provide up to 42% of local diets [2,3]. In addition, the juice is traditionally used to treat pain, flu, and fever [4], while oil extracted from the fruit is known to treat diarrhea [5]. During the last decades, *E. oleracea* has become a global commodity however [6]. Originally only harvested from flooded areas, the palm is now being grown in large plantations [7–17]. *E. oleracea* was initially commercially important as source of palm hearts [3,18], but the species has more recently attracted fame for its supposed health-promoting benefits [4,19–33]. The much wider distribution of Açaí beverages has led to a tremendous increase in price, as well as the use of quicker, non-traditional preparation techniques, depending on the fancy of the end-users [34–36]. This in turn is suspected to have led to outbreaks of orally transmitted Chagas disease [37–40]. *Euterpe precatoria* in contrast has been reported much more frequently for its traditional use in house construction, e.g. as posts and for thatch. During the last decades reports on the use of *E. precatoria* adventive roots for the preparation of medicines to treat malaria, hepatitis and other ailments have become more frequent [41].

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Fig. 1 *Euterpe oleracea* Mart.

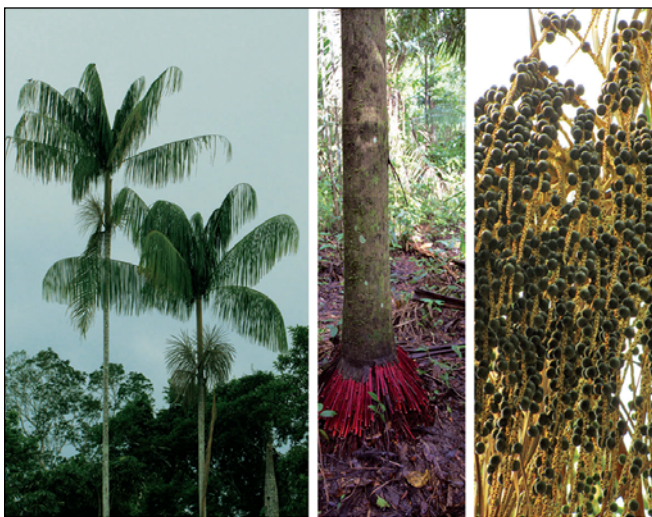


Fig. 2 *Euterpe precatoria* Mart.

Our presented research focused on the uses of both species in Western Amazonia (Bolivia and Peru), in order to evaluate change of usage by local communities as possible effect of the global boom in *Euterpe* products.

The changing use of *Euterpe* sp. in the Western Amazon

As late as 2010 Macia et al. [42] outlined the broader use records of palm species in Western Amazonia based on a large-scale literature review. According to this overview *Euterpe oleracea* had been used in the Amazonian areas of Peru and Bolivia, only by mestizo communities, and mostly for the preparation of beverages and palm hearts [43,44], and only the roots were infrequently applied as medicine, mostly for endocrine/urinary system disorders.

Recent research [45,46] indicates however that the use of *Euterpe oleracea* has increased in recent years, and is slowly spreading from mestizo to indigenous communities, e.g. the Cocama and Awajun in Peru. In addition to the uses described above, *E. oleracea* is also infrequently used for construction purposes (thatch and house-posts), and the roots serve to treat

anemia, as well as a galactagogue. While older participants showed a trend to know more food uses, younger participants had a tendency to mention more medicinal uses (Tab. 1).

In contrast, *Euterpe precatoria* has traditionally been much more widely used in Western Amazonia, both by indigenous and mestizo communities. However, usage centered mostly on construction [44,47–62], household utensils and other artifacts [44,48–50,55,58–62], as well as medicinal uses [43,44,47–51,53–65]. It is however important to note that fruits hardly play any role in the latter category – if at all, fruits were infrequently mentioned as “vitamins”, but in no case whatsoever as cure for any ailment. This could be corroborated with through our own research. Almost all communities mentioned the medicinal use of *E. precatoria* roots for a wide range of mostly parasitic and viral ailments (malaria, “parasites”, hepatitis, yellow fever, anemia related to malaria, hepatitis), as well as to treat pain, urinary infections, and as galactagogue. This medicinal knowledge was spread equally across all ages. However, not a single informant mentioned to use *Euterpe* fruits as medicine. In addition, older participants were more inclined to know the species as source of material for utensils, and significantly, for construction. Younger participants were more familiar with food uses. This was particularly significant in case of young mestizos. Ethnicity had virtually no influence on use-knowledge in any of the use categories observed [45,46,66–70] (Tab. 1).

The use of *Euterpe precatoria* fruits as food also showed striking differences between indigenous and mestizo communities. Literature indicated a much more frequent use of the species for the production of palm hearts amongst mestizos [7,43,49,52,53,56–61,64], versus indigenous communities [48,55,59,60,63,71]. A similar trend holds true for the use of the species to produce beverages: again, mestizo communities are much more inclined to use *E. precatoria* fruits for this purpose [7,44,49,53,56–58,61], than indigenous communities [48,50,51,54,72–83].

This trend however seems to have changed dramatically in the more recent past. Our own data indicate a widely spread use of *Euterpe precatoria* amongst all communities interviewed, without regard to ethnic background. However, we did encounter a significant difference related to participant age – in case of food uses, older participants did most frequently not mention *E. precatoria* as food, while younger participants often only knew the species as potential source of palm hearts and beverages. However, many of these participants indicated that they were not themselves consuming the material, but rather collected it for sale [45,46,66–70] (Tab. 1).

Conclusions

The plant use knowledge of local communities in the Western Amazon of Peru and Bolivia clearly depends little on their ethnic background. Differences in knowledge can rather be linked to the age of the users. Young mestizo and indigenous inhabitants are most familiar with the use of *E. precatoria* fruits and palm hearts or food, and know about medicinal uses, while older informants focus on the use of the species for construction and utensils. A reason for this discrepancy might be that the harvest of palm hearts inevitably destroys the resource, and thus if a species is needed as construction material, it makes little sense to destroy the resource for short-term gain, in particular if market access is very limited. The global boom

Tab. 1 Use differences of *Euterpe oleracea* and *Euterpe precatoria* in the present study.

Ethnic group	Food – fruits	Food – palm heart	Construction	Medicine – roots	Medicine – fruits	Utensils	Art
<i>Euterpe oleracea</i>							
Ese Eja							
Arazaeri							
Awajun	eaten		leaves	galactagogue			
Mestizo Riberalta	infrequent	sale	stem, leaves	anemia			
Chacobo							
Mestizo Iquitos	eaten	eaten	stem, leaves	anemia			
Cocama	eaten	eaten	stem, leaves	anemia			
Lecos							
Yuracare							
<i>Euterpe precatoria</i>							
Lamas	eaten		stem, leaves	hepatitis, yellow fever, malaria, kidney			used
Ese Eja	eaten	eaten	stem, leaves	Infections, pain, hepatitis			used
Arazaeri	eaten	eaten	stem, leaves	anemia, infections, prostata			used
Awajun	eaten		stem, leaves	galactagogue, hepatitis, anemia			
Mestizo Riberalta	eaten	sold only	stem, leaves	anemia			used
Chacobo		sold only	stem, leaves			used	
Mestizo Iquitos	eaten	eaten	stem, leaves	malaria, urinary, anemia, infections			used
Cocama	eaten	eaten	stem, leaves	malaria, urinary, anemia, infections			used
Lecos	eaten	eaten	stem				
Yuracare	eaten	eaten	stem, leaves	parasites			

of palm hearts and later açai fruit products, and the associated influx of quick cash, led to a replacement of the originally used products and species with others that can be sold commercially. In case of *Euterpe oleracea*, still only few communities in Western Amazonia know the palm at all, indicating that this species has relatively recently been introduced as reaction to the global boom of açai products.

The fact that the older local population does hardly ever eat açai fruits (or use them for the preparation of beverages), while essentially any other palm with soft fruits is consumed in this way, might show some relation to the Chagas disease risk mentioned above (Health, Oksen, Signori Pereira, Velente). No other palm species have been reported as source of food-borne Chagas. This could mean that the indigenous population originally avoided *Euterpe* sp. as food source, precisely to avoid potential illness. This hypothesis would merit further investigation.

Overall it is clear that the global commodity boom has led to a shift in the usage of *Euterpe* sp. from construction and utility use to various forms of food usage. This has inevitably increased the pressure on natural populations, even in the relatively remote Western Amazon, and has led to the introduction and cultivation of *Euterpe oleracea*.

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