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The (in)visible market of *miriti* (*Mauritia flexuosa* L.f.) fruits, the “winter acai”, in Amazonian riverine communities of Abaetetuba, Northern Brazil

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ABSTRACT

While the sale of non-timber forest products (NTFPs) is nearly invisible in and marginal to official economic statistics, it is an important source of income for many rural populations in Amazonia. This paper discuss a NTFPs production and marketing chain (*Mauritia flexuosa* fruits) in Abaetetuba County, Northern Brazil. Research was carried out using the following methods: participant observation, application of semi-structured questionnaires, and by accompanying production during harvest months in 2015. Data show that this channel is made up of many actors, including riverine people (*ribeirinhos*), middlemen and merchants in Abaetetuba and other regions in Amazonia. Fruits are sold through short distribution channels in Abaetetuba, contributing to up to 80% of all income produced by *ribeirinhos* during winter months; *miriti* income ranges from 918.00USD to 2006.00USD per household per harvest depending on the distribution channel used. These values are equivalent to those obtained from acai (*Euterpe oleracea*) sales obtained by acai producers who employ moderate management levels in Amazonia, a fact that leads *ribeirinhos* to consider *miriti* the “winter acai”. The importance of *miriti* fruit and product sales for households in the study area is striking, and as such, policies to strengthen NTFP value chains are in great demand.

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1. Introduction

The extraction of non-timber forest products (NTFPs) by traditional peoples has long been identified as having the potential to aid biodiversity conservation and local development initiatives. Traditional peoples who reside in the forest rely on their local knowledge to manage and extract NTFPs without cause significant negative impacts on the forest, thereby resulting in biodiversity conservation (Arnold and Pérez, 2001), although it is recognized that the use of destructive harvesting techniques contradict this purpose (Peters, 1994). On the other hand, local development depends on the constitution of local markets to provide opportunities to generate income, and ultimately for the social inclusion of marginalized groups (Shanley et al., 2002; Shakleton et al., 2007).

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Local markets are defined as all the places where goods are sold in the immediate surroundings of villages, communities, and small towns, such as in neighboring cities, bus stations, ports, open air markets and other close-by urban markets, where short distribution channels predominate. Within these channels, the same person often performs various functions (i.e. extracts fruits, processes and sells them) (Shakleton et al., 2007). Due to these characteristics, both these market places and the products sold in them are rarely recognized or quantified in official statistics – a fact that prompts some authors to consider them “invisible markets” and “invisible products”, respectively (Shanley et al., 2002; Shakleton et al., 2007). However, the importance of NTFPs is highlighted by researchers across the globe (Belcher et al., 2005), the example of studies in countries of Amazonia (Anderson and Ioris, 1992; Shanley et al., 2002; Santos and Guerra, 2010; Horn et al., 2012; Sampaio et al., 2012), Africa (Scheckenber et al., 2002; Shakleton et al., 2007) e Asia (Subedi, 1999; Bista and Webb, 2006; Uprety et al., 2016) where the commercialization this products contributes to mitigate the poverty and the social inequality.

In local Amazonian markets, native fruits are the commonly marketed NTFPs (Shanley et al., 2002); this is possibly because they are species that have for centuries been manipulated anthropogenically, having long been domesticated and more widely disseminated (Clement, 1999). Thus, today, these species are more widely available to forest peoples and communities. In the Amazonian estuarine islands, the extraction of NTFPs, especially palm fruits like acai (*Euterpe oleracea* Mart) and *miriti* (*Mauritia flexuosa* L.f.), is vital to the *ribeirinhos*' social reproduction strategies, people who both consume and sell these fruits, such they are almost always available in regional local markets (Anderson and Ioris, 1992; Hiraoka, 1999; Cotta, 2010; Sousa et al., 2015, 2016).

The importance of acai to *ribeirinho* social life is widely recognized (Anderson and Ioris, 1992; Chaves et al., 2015). The fruit is considered fundamental to the identity of different *ribeirinhos* groups across Amazonia, being consumed daily as part of local culinary practices, and it is also an important source of local income (Anderson and Ioris, 1992; Chaves et al., 2015). Considered the “black gold” of Amazonia, the commercial value of the acai has been increasing steadily since the mid-1990s; today the fruit now reaches national and international markets. As a result, acai is the principal commercial crop produced on *ribeirinhos*' smallholdings (*estabelecimento de produção familiar* – EPFs) (Weinstein and Moegenburg, 2004; Cotta, 2010; Cialdella and Alves, 2014). According to data from the Brazilian Institute of Geography and Statistics (*Instituto Brasileiro de Geografia e Estatística* – IBGE), in 2015, 230 tons of acai fruits were produced in Abaetetuba county, worth an estimated value of 469,168.33 USD (IBGE, 2017).

On the contrary, *miriti* is important to Abaetetuba's local economy and culture, especially for its use in and sale of handicrafts, such as toys and *paneiros* (woven instrument used in manioc flour production, among other uses) (Santos and Coelho-Ferreira, 2011). Additionally, *miriti* fruits are heavily consumed by both island and city residents (Barros and Silva, 2013; Sousa et al., 2016). However, fruits still constitute an “invisible market” since no official records of its sale exist. In fact, IBGE only presents information on the production and sale of *miriti* fibers. The agency reports that 10 tons were sold in 2015, yielding 7649.48 USD in profits (IBGE, 2017).

The *miriti* harvest season occurs during the Amazonian winter (the rainy period occurring between January and June), which is also a time of natural resource scarcity; these months represent the acai inter-harvest and closure periods for several commercial fish species in this region of Amazonia (Sousa et al., 2015). Within this context, *miriti* fruit collection gains importance, and is further driven by the growing demand for fruit in recent years, as already documented by Cotta (2010). Currently, it is the principal NTFP consumed and sold by *ribeirinho* families in the Amazon Estuary, locally known as the “winter acai” (Sousa et al., 2015).

In this way, this article seeks to characterize and analyze the *miriti* production and marketing chain based on a case study from *ribeirinho* communities of Sirituba island in Abaetetuba, Pará. Our hypothesis is that, even with few investments in public policies, the collection and sale of *miriti* fruit by *ribeirinhos* in Abaetetuba is already a significant source of local income, allowing social reproduction during the acai inter-harvest, a fact qualified as “winter acai”. Therefore, our objective with this paper is to give a visibility to the value chain of this fruit, placing it in the international discussions and, thus, contribute to the strengthening of policies and projects aimed at strengthening the value chain of this and other NTFPs.

It should be noted that some initiatives have already been taken in the sense of strengthening the socio-biodiversity product chain, as treated in Brazil, non-timber forest products of interest to family farmers, traditional people and communities, such the *miriti*, as well as, the National Plan for the Promotion of Socio-Biodiversity Products Chains (PNBSB), with actions aimed to strengthening technical assistance and rural extension services focused on socio-biodiversity products, expansion of credit lines for production and management of social-biodiversity products, expansion of market access and minimum price guarantee, this last is regulated by the Minimum Price Guarantee Policy for Socio-biodiversity Products (PGPM-Bio) (Brasil, 2009). However, some efforts are still necessary for the proposed actions to be effectively implemented and the policy really accessed by the extractivists, because in many regions of Brazil these policies are not yet impacting the people they are intended for (Santos and Rodrigues, 2015; Kramer, 2017; Lima et al., 2017).

2. Material and methods

2.1. Characterization of the study site

Quantitative and qualitative research was conducted on Sirituba island in Abaetetuba, Pará, Brazil. Sirituba is a fluvial-marine island located at the confluence of the Maratauíra River and the Bay of Capim, extending over a territory of 758,328.3 ha. Island management pertains to the Federal Heritage Division, Pará state (*Superintendência do Patrimônio da*

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