

PRESENT STATUS OF THE GERMPLASM BANK OF *Oenocarpus/Jessenia* COMPLEX FROM EMBRAPA AMAZÔNIA ORIENTAL, BELÉM, PARÁ, BRAZIL

Elisa FERREIRA MOURA¹, Maria do Socorro PADILHA DE OLIVEIRA²

Embrapa Amazônia Oriental, Belém, Pará, Brazil,
¹elisa@cpatu.embrapa.br, ²spadilha@cpatu.embrapa.br

ABSTRACT

Embrapa Eastern Amazonia contains a germplasm bank of the genus *Oenocarpus*, known for the quality of its fruit oil and whose species are much used by Amazonian populations. The bank contains accessions of five species, and a survey of the present number of accessions and plants for four species was done. The bank had lost many accessions, due mainly to a fire in one of the areas. The number of accessions of *Jessenia bataua* was reduced in 57.4% from the original amount. Actually, the germplasm bank of *Oenocarpus/Jessenia* contains 55 accessions and 169 plants of *J. bataua*; 32 accessions and 109 plants of *O. distichus*; 32 accessions and 200 plants of *O. mapora* and 20 accessions and 54 plants of *O. minor*.

INTRODUCTION

Palm trees are one of the most useful plants for indigenous and rural Amazonian populations. The genus *Oenocarpus* contains nine species, and six of them are native of the Brazilian Amazonia. The species of this genus produce fruits with oily and nutritious pulp. Its oil is similar to olive oil, while *O. bataua* (= *Jessenia bataua*) oil is being studied for biodiesel production. Considering the great potential of the species of this genus for local populations and agroindustry, Embrapa Eastern Amazon has established a germplasm bank of the genus *Oenocarpus* in Belém, Pará, Brazil. This germplasm bank contains five species: *O. bacaba*, *O. bataua*, *O. distichus*, *O. mapora* and *O. minor*, and is the only germplasm bank of these species in Brazil at the moment. The survey of accessions and plants was made for four of the five species of the bank and the results are presented here.

MATERIAL AND METHOD

The *Oenocarpus/Jessenia* germplasm bank complex of Embrapa Eastern Amazon was installed between 1989 and 1992, in an area 15 km far from its institutional center in Belém, Pará, Brazil.

This germplasm bank was established based on samples realized in the 1980's and 1990's, in several cities from Brazilian states of Pará, Acre, Amazonas, Roraima and Rondônia. Fruits were sampled from each randomly selected matrice. The seeds were germinated and the seedlings planted in experimental designs of randomized blocks or lattice with two replications of linear plots of five plants, disposed in rectangular spaces of 7m x 7m., under

conditions of inland and yellow latosoil, light-textured soil. Each accession represents a family of half-sibs, initially with ten individuals each.

The survey of the *Oenocarpus/Jessenia* germplasm bank complex was done between November 2007 and January 2008, based on the identification of the plants in the field by comparing the sketch obtained right after the germplasm bank installation. In the occasion, the number of surviving accessions and the number of plants alive per accession were counted for four species: *O. bataua*, *O. distichus*, *O. mapora* and *O. minor*.

RESULT AND DISCUSSION

The survey of the number of accessions and plants per accession of the *Oenocarpus/Jessenia* complex are showed on Table 1. The number of plants per accession ranged from 1 to 10. The species *O. distichus*, is represented by 31 accessions from Pará and one from Roraima. The bank contains 32 accessions of *O. mapora* from Pará, Amazonas and Acre, and is the species represented by the highest number of plants (200). *O. minor* is represented by 20 accessions from Pará, while *O. bataua* is represented by 55 accessions from Pará, Roraima and Colômbia, and is the species with the highest number of accessions. There were losses of many plants, including whole accessions (Table 1), especially of *O. bataua* (which lost 57.4% of the accessions and 86.9% of the number of plants), mainly due to a fire in one of the areas of the bank. This fire caused a total loss of *O. bataua* accessions installed in this area, as well as many accessions and plants of *O. minor* and *O.*

distichus. Events like that alert for the importance of another ways for *ex situ* germplasm conservation, such as *in vitro* techniques. As the majority of Amazonian species, the palm seeds of *Oenocarpus* genus are recalcitrant, which hampers the use of seeds as material for conservation. Besides the losses caused by the fire, attack from the *Dynamis borassi* beetle also led to death of some plants, mainly *O. mapora* and *O. minor*. The lack of continuity on the banks maintenance has many causes, such as the eventual financial support reduction caused by changes of priorities. Germplasm bank curators commonly face this. Clement & Yuyuma (2005) also mention the lack of continuity in the maintenance of germplasm banks of *Bactris gasipaes* to explain the loss of plants.

The *Oenocarpus/Jessenia* germplasm bank can be considered small, few representative of the species diversity, however its size permits more adequate use of the germplasm, which is convenient with the conduction of genetic breeding programs and basic studies about the species. Studies with the accessions from the germplasm bank generated information about pollinator insects (Couturier et al., 2002; Oliveira et al., 2002), the reproductive system of *O. mapora* (Kalume et al., 2002a, Kalume et al., 2002b) and about seed germination (Nascimento et al., 2002). At the moment, the molecular characterization of *O. mapora* is being conducted and will be done with the other species, as well as the molecular comparison among them. The morphological characterization is also being completed.

Table 1. Number of accessions and plants per species present at the Germplasm Bank of the *Oenocarpus/Jessenia* complex of Embrapa Eastern Amazon.

Species	Original number of accessions	Present number of accessions	% of losses	Original number of plants	Present number of plants	% of losses
<i>O. distichus</i>	40	32	20%	400	109	72.75%
<i>O. mapora</i>	35	32	9.4%	158	200	21%
<i>O. minor</i>	24	20	20%	240	54	77.5%
<i>O. batava</i>	129	55	57.4%	1290	169	86.9%

The evaluation of the accessions from the bank germplasm has created a lot of information reinforcing not only the importance of its conservation, but also of its enrichment, with the addition of new accessions. The losses do not justify the abandon of the germplasm bank, since they occurred due to fatalities, or to the lack of maintenance because of the reduction of financial resources for its support.

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