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Domestication of a Wild Silkworm Borocera cajani in Madagascar: An Alternative Source of Food and Protein

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Abstract

In Madagascar, 42 % of households have an unbalanced diet and in particular a deficiency in proteins and vitamins. Malagasy farmers have a poorly diversified diet and they consume mainly cereals and tubers and very little meat, fish, legumes, dairy products, fruits, vegetables, sugar and oil. Insects can be used as a source of food and protein. In the Amoron'i Mania Region (Central Highlands of Madagascar), the rate of food insecurity is 30 %. Insect consumption has been practised by the people of this region for a long time. In general, the population collects insects in the forest. The species *Uapaca bojeri* (Euphorbiaceae), commonly known as 'Tapia', is a plant endemic to this region, alone forming the wild forest of 'Tapia'. This forest is the natural habitat of the wild silkworm *Borocera cajani* (Lasiocampidea), a bivoltine species with 2 generations per year. The chrysalis of this insect are consumed by the local population but they are only available for a short period of the year during the rainy season, between January and March, the second generation hatches between the end of April and November. The bush fire perpetually threatens the *U. bojeri* forest and the massive gathering of pupae can lead to the disappearance of this species. The development of a mass rearing technique for *B. cajani* outside its natural ecological niche is being undertaken as part of this study in order to reduce the pressure on this species and to produce these pupae in quantity for the food. Laboratory tests have evaluated the potential of using guava leaves *Psidium guyava* (Myrtaceae), substituting those of Tapia, to feed the insect. The optimum temperature is 24 ° C ± 0, 5 and the relative humidity is 70 ± 5 % the rearing yield is 70.12 %, the duration of obtaining the chrysalis is 102.4 ± 2.0 days and the average weight is 1.77 grams per pupa.

Keywords: Animal proteins, entomophagy, mass rearing, *Psidium guyava*, wild silkworm

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