

Occurrence of *Pachycoris torridus* (Scopoli, 1772) (Hemiptera: Scutelleridae) on Physic Nut (*Jatropha curcas*) in Northwest of Sao Paulo, Brazil

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Abstract

We notified for the first time the occurrence of *Pachycoris torridus* (Scopoli, 1772) (Hemiptera: Scutelleridae) in different localities of Northwest region of the State of Sao Paulo, attacking the culture of physic nut (*Jatropha curcas*). The stink bug *P. torridus* shows longevity, are phytophagous and polyphagous, characteristics that emphasize the importance of their records for a better understanding of their infestations in the culture of physic nut, a plant whose seeds are an importance source of raw material for the production of biodiesel.

Keywords: *Jatropha curcas*; *Pachycoris torridus*; Stink bug; Entomological lifting

Scientific Note

The physic nut (*Jatropha curcas*) is a plant of the family Euphorbiaceae, with an increasing highlight agricultural in Brazil by the high oil content in the seeds, low cost of production cost and their capacity to produce in sandy soils with low fertility, besides of the ease of cultivation and harvesting [1]. With the possibility of using of physic nut to produce biodiesel, several planting areas and researches have been installed in different regions of Brazil, being a plant of easy propagation and with longevity of 30-50 years and can live for over a century [2].

The geographical distribution of physic nut is wide, being adaptable to the adversities of the soil and the climate. Is found in a wide range climatic and pluviometric, can survive in adverse conditions such as 200 mm of annual rains or three consecutive years of drought, because, as adaptation, paralyze their growth in those periods, losing their leaves and surviving from the water stored in the stems [3,4].

For being a perennial crop, can be used in soil conservation, once covers it with a layer of dry matter, reducing erosion and loss of water by evaporation and enriching the soil with organic matter decomposed [2]. The fruit is capsular, ovoid shape, with a diameter of 1.5 cm to 3.0 cm. It is trilobular with a seed in each cavity, consisting of a ligneous pericarp, indehiscent, initially green, becoming yellow, brown and finally black, when it reaches the maturity stage. It comprises 53% to 62% of seeds and from 38% to 47% of bark, each weighing 1.53g to 2.85g. In seed are found 7.2% of water, 37.5% of oil and 55.3% of sugar, starch, albuminoidal and mineral materials [1].

In domestic medicine, the latex of this plant is used as a healing agent, the roots are considered diuretic and effective against rheumatism. The seeds and the oil extracted from these are often used as purgative, in the treatment of skin diseases, gout, paralysis, hemorrhoids and rheumatism. However, the ingestion of a single fresh seed can cause vomiting and diarrhea and, when eaten in excess, can be fatal due to toxic properties of compounds (globulin and acid) presents in the seed [2].

The physic nut has as defense the caustic latex exudation which

acts as a repellent and is toxic to most species [1]. However, the species *Pachycoris torridus* (Scopoli, 1772) is able to colonize the pinion, which gives the insect highlighted as agricultural pest of this culture vegetal. The fruits attacked by *P. torridus* become unviable presenting initially dark and deformed appearance, which results in subsequent fall and loss of product [5]. Thus, the damage caused by these insects to the fruits of physic nut has been reported to decrease the productivity of the oil used as a raw material for biodiesel [5,6].

P. torridus belongs to the Hemiptera order and Heteroptera suborder, insects popularly called stink bug. This Heteroptera presents longevity, live for up to 600 days [7], are phytophagous and polyphagous, with a record of their attacks in 16 vegetable crops [8], with wide distribution in the Neotropical region [9]. In Brazil, the occurrence of *P. torridus* was reported in at least 15 states (Table 1). In Sao Paulo, the species was observed only in the cities of Jaboticabal, Araras, Campinas, Itapira, Piracicaba and Tatui [7,9-12]. In this context, this work notifies, for the first time, the presence of *P. torridus* in northwestern of Sao Paulo, Brazil.

Specimens of *P. torridus* were collected in Sao José do Rio Preto (20°46'48.2"S, 49° 21'18.3"W), Américo de Campos (20°17'43.1"S, 49°44'12.2"W), Pontes Gestal (20°10'18.1"S, 49°42'21.2"W) and Monte Aprazível (district of Engenheiro Balduino (20°40'50.6"S, 49°42'09.6"W) (Figure 1). The insects were analysed at the Laboratory of Cytogenetics and Molecular of Insects, localized in Institute of Biosciences, Humanities and the Exact Sciences, Sao Paulo State

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States	References
Alagoas	[5]
Amapa	[16]
Amazonas	[10]
Bahia	[8]
Goias	[17]
Maranhao	[10,18]
Mato Grosso do Sul	[6]
Minas Gerais	[10,19]
Para	[20]
Parana	[21]
Piaui	[22]
Rio de Janeiro	[10,13]
Rio Grande do Sul	[23]
Rondonia	[24]
São Paulo	[7,9-12]

Table 1: States with record of *Pachycoris torridus*.

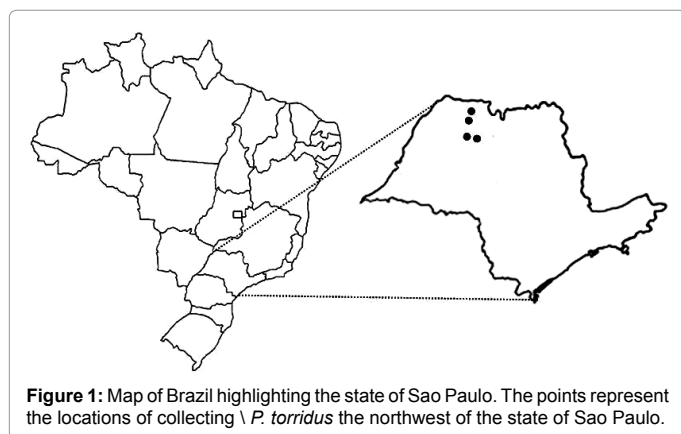


Figure 1: Map of Brazil highlighting the state of Sao Paulo. The points represent the locations of collecting *P. torridus* the northwest of the state of Sao Paulo.

University – Júlio de Mesquita Filho (UNESP/IBILCE), Sao Jose do Rio Preto, Sao Paulo, Brazil. The identification of insects was based on work of the Monte (1937) [13] and Costa Lima (1940) [14].

These insects were collected in plantations of physic nut, which were familiar plantations, used mainly as a living fence. It was possible to observe the presence of all developmental stages of *P. torridus*, being, five nymphal stages (N1, N2, N3, N4 and N5) and adult males and females. During the first and second instar, the insects remained aggregates and under maternal protection, mainly in the lower surface of the leaves, once parental care is a characteristic well known for this species [15]. In the other nymphal instars (N3, N4 and N5), these heteropteran were found in smaller groups or isolated. We emphasize that all stages occurred simultaneously in physic nut, and from the third instar, stink bugs remained on leaves and unripe and ripe fruits located in different strata of the plants. All adult insects presented the same chromatic patterns with eight spots on pronotum and 14 on scutellum.

The presence of *P. torridus* in northwest region of the State of Sao Paulo is of great economic importance for the nature of the damage described for culture of physic nut. Furthermore, we highlight that the characteristic of polyphagous of *P. torridus*, which allows this insect can colonize and mainly become an agricultural pest to other crops of economic importance.

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Development of *Pachycoris torridus* (Hemiptera: Scutelleridae) on *Jatropha curcas* (Euphorbiaceae), *Psidium cattleianum* (Myrtaceae) and *Aleurites fordii* (Euphorbiaceae). Florida Entomologist. 96:1149-1157.

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