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Poster

NATIVE BEES POLLINATE *BACOPA STRICTA* (PLANTAGINACEAE, GRATIOLEAE) IN AN URBAN AREA OF CAMPO GRANDE, MATO GROSSO DO SUL

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Introduction

There are 65 species of the aquatic herb genus *Bacopa* [1], of which 26 occur in Brazil [2]. The genus is reported to be entomofilic, predominantly pollinated by bees *Apis (A. mellifera, A. cerana, A. dorsata, A. florea)* [3,4,5]. Here we present preliminary data about the pollination of the amphibian species *Bacopa stricta*, which we also predicted to be principally pollinated by bees.

Methodology

Study was done in June/July 2015 in a partially flooded artificial drainage canal on the campus of the Universidade Federal de Mato Grosso do Sul, Campo Grande, MS (20°30'06.99"S 54°36'45.52"W). We studied floral morphology (dimensions, coloration, resources) and floral longevity (20 individual flowers from four groups were marked and followed from pre-anthesis until wilting). Pollen viability was tested with acetic carmine dye and stigma receptivity for presence of exudates [6]. Observation of floral visitors (e.g. behavior, frequency of visit= fv =number of visits/total observation time) was done between 8h-17h, for a total of 6h40min.

Results

Flowers of *B.stricta* come together in fascicles and are zygomorphic, pentamerous, digitaliform (Fig. 1a), small (x=7,74±0.85mm), hermaphroditic and diurnal. Corolla is purple with a yellow mark on the inside of the tube; with two lobes on the superior position and three on the inferior (Fig. 1a). Androecium is epipetalous, didynamous with larger stamens (inferior) (x=2.3±0,3mm) and smaller (superior) (x = 1,61 ±0,35mm) inside the floral tube. Anthers are white, versatile, with 100% of pollen viability. Stigma is bilobed, located in front of the inferior stamens (x=4,8±0,39mm). Nectar is produced at ovary base. Flowers last for about one day. Corolla starts to open at 9h (anthers open, stigma receptive), at 10h nectar starts to be produced, 11h the corolla finishes opening, and falls off the next day. Eight insect species visited the flowers: four bees [*Augochloropsis ignita* (11,1mm in length; fv = 0,055), *Paratetrapedia* sp. (10,9mm; fv = 0,055), *Paratrigona lineata* (11,4mm; fv = 0,01), *Ceratinula* sp. (8,4mm; fv = 0,025)], two butterflies [*Anartia jatrophae* (fv = 0,025), Hesperiidae 1 (fv = 0,065)] (Fig. 1c), a Vespidae (~10-12mm; fv = 0,027)] and a Formicidae (~2-4mm, fv = 0,03). *Paratetrapedia* sp. and *A. ignita* collected pollen (Fig. 1b, d) while other insects collected nectar. To collect pollen bees landed on the superior lobes of the corolla (Fig. 1b, d), inserted their heads in the floral tube and collected pollen with the first pair of legs, contacting anthers and stigma. Smaller bees and wasps collected nectar, landing on the inferior portion of the corolla, entering partially (wasp) or totally (others) into floral tube, contacting anthers and stigma with their front (wasp) and superior parts of their bodies. Butterflies landed on top of inferior lobes and inserted proboscis in floral tube (Fig. 1c), without contacting anthers and stigma. Ants entered flowers and collected nectar.

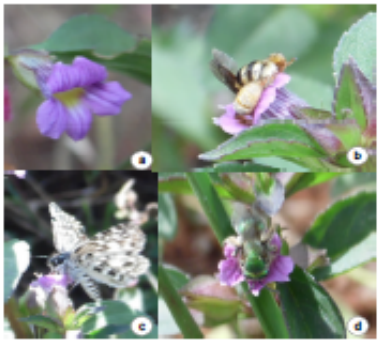

Fig. 1. Flower of *Bacopa stricta* (a). *Paratetrapedia* sp. (b) and *Augochloropsis ignita* (d) collecting pollen and Hesperiidae 1 collecting nectar (c) from flowers.

Discussion

Flowers of *B. stricta* have diverse characteristics associated with pollination by bees: diurnal anthesis, landing platform, lilac coloring with floral guide, and nectar [7]. In fact, bees represent 50% of floral visitors and frequency of visits. Other insects (except wasps) were nectar robbers. Therefore *B. stricta* was pollinated by native bees, and *Apis mellifera* was not seen visiting flowers, as observed in other species of *Bacopa* in North America and India [8,9].

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