AUTONOMOUS SELF-POLLINATION IN MACROPTILIUM LATHYROIDES (L.) URB. (FABACEAE), SPECIES WITH ASYMMETRIC FLOWERS AND FORAGE POTENTIAL

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Macroptilium comprises ~20 neotropical herbaceous species, many of them common in disturbed sites and present a high forage value. These species have complex asymmetric flowers with specialized pollination mechanism known as "brush type": style act as a pseudo-stamen exposing the pollen in a subapical brush when the pollinators (bees) visit the flowers. Breeding system of Macroptilium species can be predominantly autogamous or facultatively xenogamous with possibility of the autonomous self-pollination. Here we investigate the capacity for autonomous self-pollination in Macroptilium lathyroides, a native and ruderal species with forage potential, in an anthropic population of the campus of the Universidade Federal de Mato Grosso do Sul, Campo Grande, in order to verify the dependence of this species on pollinators. We carried out three pollination treatments on flowers of M. lathyroides previously bagged in the pre-anthesis [autonomous- and hand self-pollination (ASP and HSP, respectively)] or exposed to the agents of natural pollination (control). Additionally we tested the pollen viability with carmine acetic (n = 50 flowers) and quantified the number of ovules (n = 20 flowers). We calculated the index of autonomous self-pollination (IAS) (ratio of % fruit set and average number of seeds obtained in ASP and HSP) (ASP/HSP) and the fecundity (seed number/mean number of ovules). IAS values: ≥ 1.0 = fully autogamous (pollinator independent); > 0 and <1 = partially autogamous; 0 = self-compatible species with some mechanism to prevent intra-flower selfing (pollinator dependent). Flowers of M. lathyroides produce pollen with high viability (x= 94.2±4.2%) and 15-21 ovules (17.6±1.7). Fruit set was recorded in all treatments, with percentages of fruiting (32-39%) (ANOVA p=0.9321), number of seeds (11-14) (p=0.2295) and fecundity (0.6-0.8) (p=0.2237) that did not differ significantly (p<0.05 ). Values of the IAS were 1.23 (fruit set) and 0.96 (seed set) indicating autonomous self-pollination and independence of pollinators. Autonomous self-pollination is important when the specialized bee pollinators of M. lathyroides are scarce or absent as is common in ruderal environments.

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