FLORAL VISITS OF THE WILD BEE, *LITHURGUS ATRATUS* AFFECT YIELD AND SEED GERMINABILITY OF OKRA, *ABELMOSCHUS ESCULENTUS* IN SRI LANKA

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Bees are declining in a fast rate due to various natural and human induced reasons. Therefore, bee pollinated crops suffer from insufficient pollination that leads to the production of low yield, low quality fruits and seeds.

Sri Lanka is a home for 150 species of wild bees. However, their contribution to pollinate crops is not well understood. Previous researchers have found out that there are crops that need specialized bees to collect any carry its flowers' special pollen grains. Okra/ladies fingers (*Abelmoschus esculentus*) of the family Malvaceae is known to produce large spiny pollen grains carried by a group of special bees. However, no attempt has been made in Sri Lanka to investigate the effect of wild bees to pollinate okra, which is a widely grown vegetable crop in the country. Therefore, we investigated the contribution of the wild bees in Sri Lanka for the production of okra compared to hand pollination and when bees are absent.

The study was carried out in a home garden in the intermediate zone of Sri Lanka, where an okra field plot was established to carry out the three pollination experiments. For each experiment, three sets of 25 flower buds were selected and tagged. One set was covered to stop bee visits, another set was kept open to enable bee visits and the other set was pollinated by hand with the help of a fine paint brush.

Two bee species were observed visiting the okra flowers during the study period. Of them, *Tetragonula iridipennis* imbibed nectar from flowers while *Lithurgus atratus* collected and carried only pollen grains. The activity of *L. atratus* was highest from 10.00 a.m. to 12.20 p.m. and at the same time anthers opened to release pollen and stigmas were sticky to fasten pollen grains. Of the three experiments, flowers those were kept open for bee visits produced larger pods, higher seed number and seed germinability compared to the experiment with closed flowers to stop bee visits. Hand pollinated flowers also produced significantly longer pods and a higher number of seeds with higher germinability. Though there was no significant difference in pod length, diameter and seed number between hand pollination experiment and bee pollination experiment, germinability of bee pollinated seeds was significantly higher. Hence, the present study highlights the importance of the wild bee, *L.atratus* to enhance pod size, seed number and seed germinability in okra in Kurunegala, Sri Lanka.

The wild bee, *Lithurgus atratus* collecting large yellow pollen grains on anthers of an okra flower.