

Does buzz pollination have an effect on fruit and seed set of egg plant, *Solanum melongena*?

Shanika Jayasinghe *¹, Inoka Karunaratne ¹

¹ University of Peradeniya

Eligible for student prize

Buzz pollination and anther dehiscence are co-evolved adaptations. It is estimated that sixty percent of the angiosperms including *Solanum melongena*, with poricidal anthers are buzz pollinated by various species of wild and domesticated bees. Buzz pollination promotes fruit and seed set of *Solanum* species hence it is important economically and in plant propagation. We studied the species of bee visitors, the frequency of visits, and rates of fruit and seed set of *S. melongena* by buzz pollination in two sites in the Kandy District, Sri Lanka. The floral preferences of bees were studied in relation to the morphology and age of flowers and the life cycle of *S. melongena*. Handling time was recorded for two common buzzing bee species on *Solanum* flowers. Effectiveness of buzz pollination was determined by comparing open buds and buds covered with pollinator exclusion bags. Results suggest that the peak activity period of bees ranges from 0800hrSLST to 1100hrSLST, which was also the time when we found that stigma receptivity and pollen release were greatest. Handling time of the selected bee species indicates that bees spend more time at new flowers than at older flowers. Data from the pollinator exclusion experiment indicate that the fruit and seed set of *S. melongena* is significantly enhanced by buzz pollinating bees. The findings of this study suggest that in New Zealand, it is possible to use the bumble bees (*Bombus* sp.) as efficient buzz pollinators to enhance the production of crops belonging to plant families Solanaceae, Melastomataceae, Fabaceae, etc. including crops such as tomatoes, egg plants, blue berries and many other.

