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**Influence of the pollinator on the yield of *Luffa cylindrical*
(Cucurbitaceae) - an under-utilized vegetable**

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Luffa cylindrical is a cucurbit known as sponge gourd or “*Niyan wetakolu*”. Although under-utilized, *L. cylindrical* is rich in nutrients. Few studies have been conducted on its reproductive biology and the effects of pollinators on the crop yield. To fill this information gap, the present study was designed to investigate pollination ecology and the effect of pollinators on yield parameters of *L. cylindrical*. Experiment was carried out in the Regional Agriculture Research and Development Center, Makandura. Floral morphology, floral phenology, pollen histochemistry, effective pollinators, stigma receptivity and anther dehiscence of *L. cylindrical* were studied. Measurement of yield parameters were collected from the plants grown in a pollinator proof plant house and plants were allowed to pollinate naturally. Fruit weight, number of fruits, fruit length, fruit yield and circumference of the fruits were measured from plants in each of three plots (4.5 x 3 m). All the agronomic conditions were provided according to recommendations of department of agriculture (spacing, irrigation, fertilization and pest management etc.). Flowers were unisexual and bloomed at around 4.30 to 5.00 am. and stigma were receptive for six hours from the time of blooming (till 11.00 a.m.). Anther dehiscence was commenced prior to flower blooming. Pollens were globular with three germ pores and contained starch, but lipids and proteins were absent. The effective pollinator and the most frequent floral visitor identified was *Apis cerana* (Honey bee). Pollination syndrome indicated that *L. cylindrical* was xenogamous and entomophilous. Mean number of fruits/ plot was significantly higher in open pollination of *L. cylindrical* (42 fruits/plot) compared to one fruit/plot in pollinator proof plant house ($P = 0.001$). The yield of open pollination was 7.71 t /ha which was significantly higher than 2.52 t/ha yield in pollinator proof plant house. Results proved that melittophily has a significant positive effect on increasing fruit yield of *L. cylindrical* and decline of pollinators has significantly reduced the fruit yield. Therefore, conservation of pollinators is essential as it is a vital ecosystem service and it directly affects food scarcity and biodiversity.

Keywords: *Luffa cylindrical*, Pollination, Crop yield, Floral phenology