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Splitting nests: what decides eduction in stingless bees

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Culturing stingless bees (*Trigona spp.*) is a challenging task. Acquiring their colonies from wild by eduction, i.e., natural hive duplication by attaching bee-box, is a slow process taking from three months to over a year. We investigate specific nest building requirements of *Trigona iridipennins* that could affect nest splitting decision. We precisely address the (1) space requirement for eduction and preference for bee-box materials, (2) requirement of nest building materials for splitting and (3) seasonal pattern of bee behaviour with respect to the nest building process. The study was initiated in July 2013 in a suburban human-dominated landscape at Dehradun, Uttarakhand, India, and is at the early stage. We initially identified three natural nests and are experimenting with different shapes, sizes and materials of bee-boxes following adaptive sampling. We used spherical earthen urn of 0.9-litre capacity and cuboidal wooden box of 2 litre capacity to begin with. We will subsequently search for more natural nests and install bee-boxes of variable dimensions. Nest building materials are analysed quantitatively and qualitatively by standard lab techniques. Spatio-temporal availability of nest building materials is to be estimated by plot sampling at fixed radial distances from the nests. Pollen and resin loads brought in by forager bees suggest seasonal availability of nest building resources. We observed the colonies building tubular extensions to join natural nest entrances to the openings provided through bee-boxes. This pre-winter event shows no signs of nest splitting. Nests were completely sealed off during peak winters from mid-December to mid-January. A post-winter scenario is likely to supply the environmental requirements, measuring which would provide the base-line data for our analysis. Precise ecological understanding of the requirements for nest splitting by stingless bees could explain the variable time taken for eduction, which would support a sustainable meliponiculture.