

DEVELOPMENT OF A PORTABLE, HEIGHT ADJUSTABLE, AND SAFE SMOKER FOR CHASING GIANT HONEYBEES (*Apis dorsta*)

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Giant honeybee (*Apis dorsta*), called *Bambara* in Sinhala has been pervaded all over the Sri Lanka. It lives in a colony of a large single vertical comb, which is built in underneath of rock cliffs, branch of trees, eaves of buildings, overhead water tanks and towers at height up to 50 meters. Although they tend to be aggressive if disturbed, they are considered to be one of the most important pollinators of the nature. Tourists, pilgrims, tea pluckers and school children are often the victims of *bambara* attacks. As a solution, colony is dispelled by using various harmful methods including burning. Use of smoke toward the colony and removal of the comb is a suitable technique to dislocate them. However, a safe and reliable mechanical smoking device is not available, therefore, this study aimed to introduce a portable, height adjustable, and safe smoker for chasing them in order to resettle in another place as they are very important. Smoker consists of smoke generation unit, smoke blowing unit, power supply unit, and smoke delivery unit. The volume of the smoke generation unit is 4 L and the height of the delivery unit can be adjusted up to 10 m. Straw and Guinea grass (1:1 ratio) were used as the firing material and performance of the smoker was tested with different compaction levels using five colonies. Firing time, air flow rate, and temperature of smoke were measured during each trial. Data were analysed by ANOVA using complete randomized design at ($p < 0.05$). The suitable compaction level for the smoke generation unit was when it filled with 270 g of mixture. The firing time, smoke flow rate and the temperature of smoke at this level were recorded as 21 minutes, 18.5 Lmin⁻¹ and 37 °C respectively and it took only 8 minutes to clear the bees for easy removal of the comb. According to the performances the newly developed smoker could be recommended for chasing *bambara* bees colonies effectively and safely.

Keywords: Bambara bee, Giant honey bee, Smoker