

## Development of a Portable, Height Adjustable and Safe Smoker for Chasing Giant Honeybees (*Apis dorsata*)

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Giant honeybee (*A. dorsata*), 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 the open and fixed underneath of rock cliffs, branch of a tree and eaves of building, overhead water tanks and towers at height up to 50 meters. Although, naturally they show aggressive behaviour, they are considered to be the most important pollinator of the nature. Tourist, 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 towards the colony and then 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 giant honeybees. Smoker consists with 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 within 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. Firing time, air flow rate and temperature of smoke were measured during each trial. Data were analysed by ANOVA using Complete Randomized Design. The suitable compaction level for the smoke generation unit was, when it filled with 270 g of mixture. Firing time, smoke flow rate and the temperature of smoke at this level were recorded as 21 minutes, 18.5 L/min and 37 °C respectively. It took only 8 minutes to chase giant honeybees from a colony. According to the performance, the newly developed smoker could be recommended for chasing *Bambara* colonies effectively and safely.

**Keywords:** Chasing, Giant honey bee, Parts of the smoker, Performance of the smoker