
OBSERVATIONS ON THE AGGRESSIVE TENDENCIES OF *APIS MELLIFERA ADANSONII*

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Abstract: Aggressive behavior of *Apis mellifera adansonii* was studied using leather balls. Parameters for measuring aggressive tendencies include; time taken for first sting to occur, time taken to be fierce, distance they follow intruder, number of stings left on the ball and time taken to become peaceful. Result confirmed the age long held believe that *A. m. adansonii* displays more aggressive tendencies than its European siblings; it followed intruders up to 423.57 meters, stung within 2.67seconds of being disturbed, became very fierce in 4.33 seconds, took 3060 seconds to become peaceful and left 8.7 stings per square centimeter of the ball. This has serious implication for bee keepers who must prepare adequately to harvest the honey store of these bees.

Keywords: Aggressive, *Apis mellifera adansonii*, Distance, Sting, Honey.

INTRODUCTION

There are four bee species known to man; *Apis mellifera*, *A. dorsata*, *A. indica*, and *A. florea*. *Apis mellifera* is the most widely distributed of the four species found in large areas of the earth surface - tropics, temperate and even subarctic regions, the remaining species are confined South East Asia. *A. dorsata* and *A. florea* nest in the open and each colony builds a single comb while *Apis mellifera* and *A. indica* nest in enclosed dark places and builds several parallel combs. Three subspecies of *Apis mellifera* are known; *A. m. adansonii* traditionally confined to Africa, *A. m. lugustica* and *A. m. caucasica* are native to Europe and the Americas. *Apis mellifera adansonii*, gathers more honey than its European and American counterparts but is also more aggressive in protecting its honey store from intruders.

Aggression is a response that delivers noxious stimuli to another organism (Collins, 1985) or is a physical act or threat of action by one individual that reduces the freedom or genetic fitness of another (Crane, 1990). Voeller and Nieh (2014) gave eight categories of aggressive behavior in animal world, of these categories bee aggression falls under territorial defense. A territory is an area in which the resident enjoys priority access to limited resources that it does not enjoy in any other area (Kauffmann, 1971). Thus aggression in bees is an overt expression of territoriality (Hunt *et. al.*, 1998; Voeller and Nieh, 2014) and has a genetic basis (Free, 1977; Hunt *et. al.*, 1998) which is constantly and positively reinforced by natural selection.

Animal populations carry genes which regulates their level of aggression and natural selection works on *Apis mellifera adansonii* maximizing this behavior. The advantage of sociality is improved defense capability through group action. Each individual in the caste increases its fitness by increasing the fitness of its close relatives. This led to the development of the sterile caste in bees. The critical defining attribute of eusociality is the development of a sterile caste. These are individuals that have forsaken their ability to breed in favour of defending their kith and kin and its store of honey. Thus their reproductive organ and glands are modified for poison production and delivery (Pedigo, 2006; Voeller and Nieh, 2014).

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The vicious nature of *Apis mellifera adansonii* came to light when scientist interested in breeding introduced this species to Brazil in 1957. The bees escaped and became established across Americas (Free, 1977; Collins, 1985).

MATERIALS AND METHODOLOGY

Strong colonies of bees were selected for this study in the month of October 2013 in the village of Lemuta in Lavun Local Government Area of Niger state. Other materials include; a stopwatch, measuring tape, bee veils, gloves, protective clothing and a leather ball (diameter 7cm). The experiment modeled on Free (1977) technique, involve suspending the ball in front of the nest opening at a distance of 5-10cm and observations were made as following;

1. Time taken for the first sting to occur on the ball.
2. Time taken for the bees to become fierce.
3. Distance the bees; follow the observer after becoming fierce.
4. Time taken for the bees to become peaceful.
5. Number of stings left in the ball.

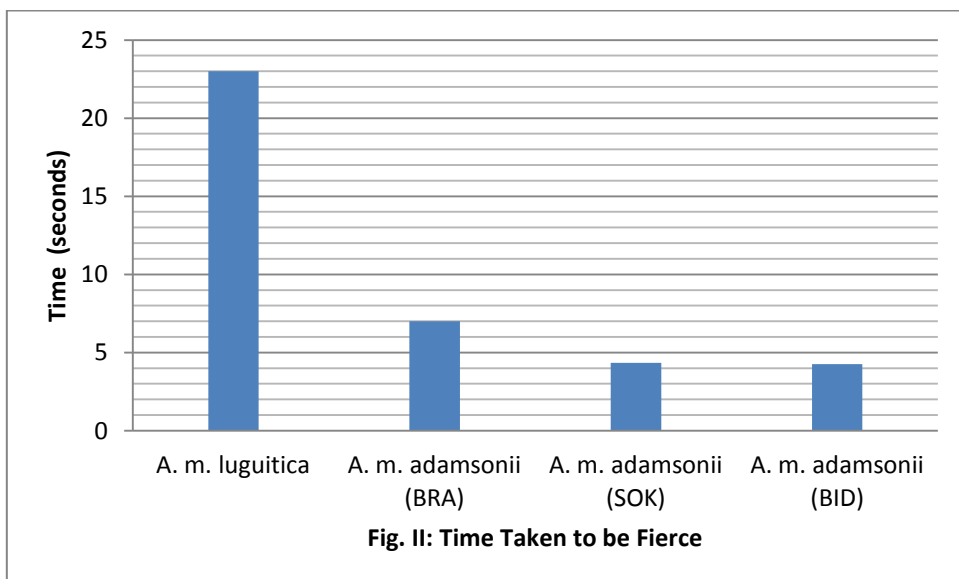
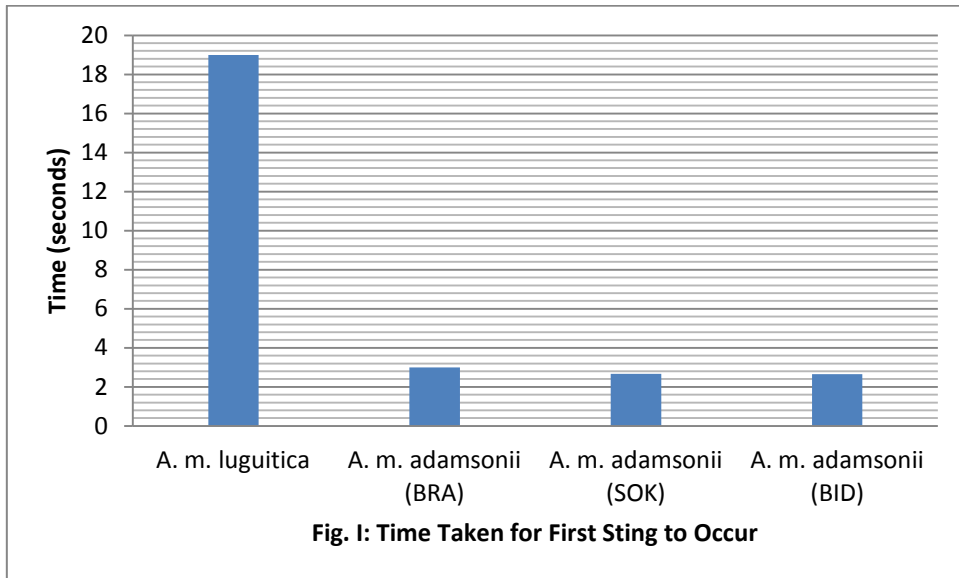
Records are taken and the experiment is repeated four times on four different days using different colonies.

RESULT AND DISCUSSION

The results obtained showed that it took just 2.65 seconds for the first sting to occur, 4.25 seconds for the bees to become fierce and 3055 seconds to return to peaceful status. The bees follow intruder to an average of 435.56 meters and left 66 stings in the leather ball. These figures reinforce the belief of experts on aggressive tendencies of *A. m. adansonii*. the data obtained in this study compares favorably with earlier studies on *A. m. adansonii* carried out in Brazil (Free, 1977) and similar study in Sokoto (Majid, 1992) and set these bees apart from their European siblings (figures I-V).

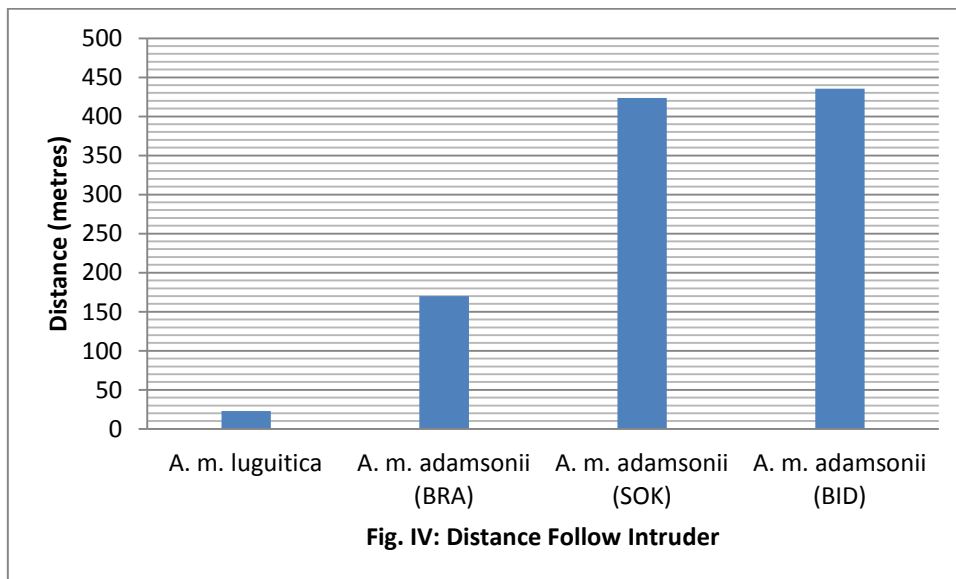
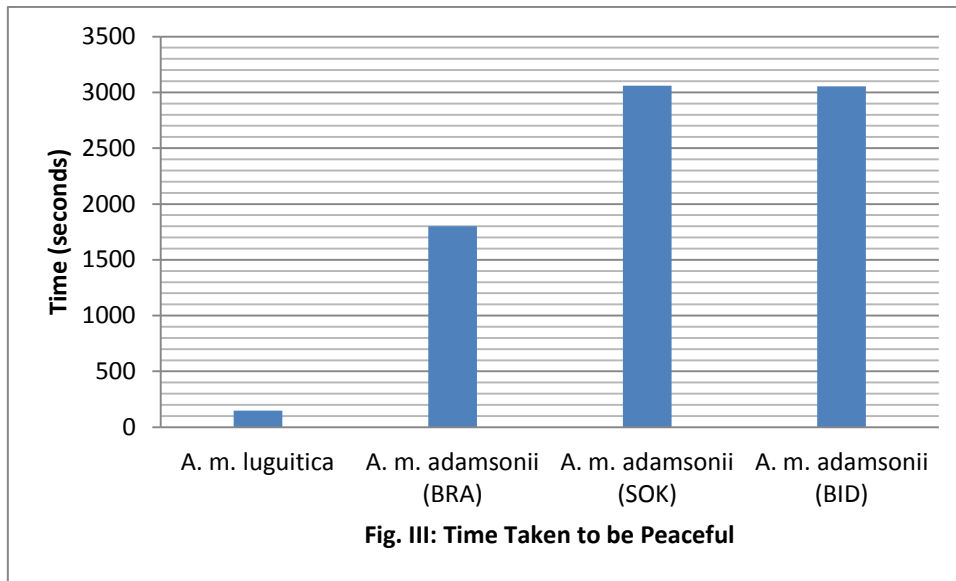
CONCLUSION

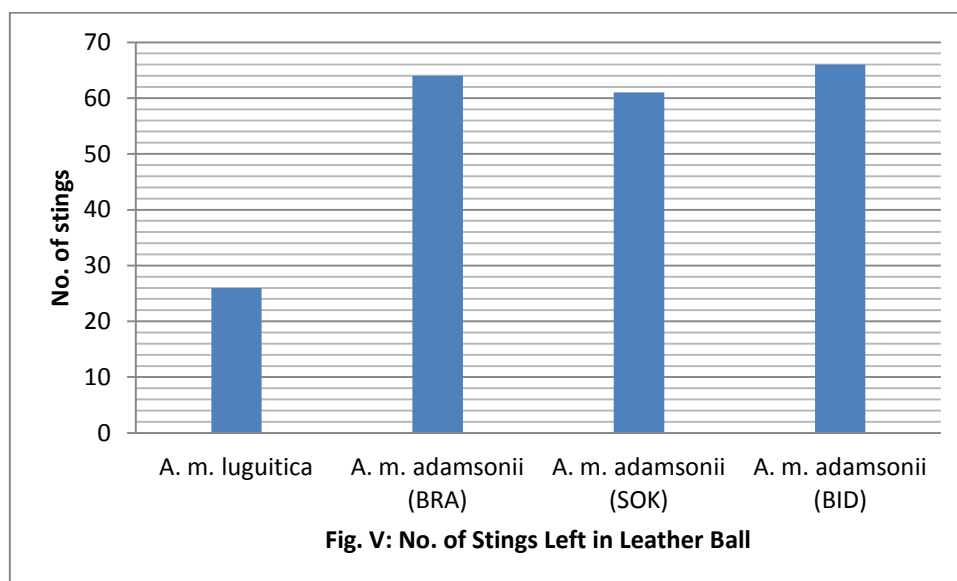
The implication of this for apiculture is both good and bad news. Good news because the bees still remain best honey collectors giving their keepers vast honey stores when compared with other species. Bad news because bee keepers have to prepare with adequately protective clothing in order to rob these bees of their vast honey stores.



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