

**Bait preference study of a day biting mosquito in a rural area of West Bengal, India**

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**Abstract**

4713 *Armigeres subalbatus* (Conquillet) mosquitoes were caught off human and bovid baits, out of which 33.63% from human bait and 66.37% from bovid bait. In bovid baits 21.47% and 44.9% *A. subalbatus* were collected from indoor and outdoor respectively. Maximum number (1204) was recorded in May 2013 and minimum number (340) was collected in the month of February 2013.

**Keywords:** *Armigeres subalbatus*, biotope, bovine bait, exophagic, Man bait.

**Introduction**

There are profused reports that *Armigeres subalbatus* is highly zoophilic (Barr and Chellappah, 1964; Pandian and Chandreshekar, 1890; VCRE, 2002; WHO, 2001 & 2002; Hati, 2010) but no available literature exists on bait preference of *A. subalbatus* mosquitoes. The aim of bait preference study of *A. subalbatus* mosquito, the avid biting habits of the females, was to note that on which bait this mosquito would prefer to alight when human bait and bovid bait were placed side by side both indoor and outdoor simultaneously throughout the day between 06.00 and 18.00 hours.

**Material and Methods**

The study was carried out fortnightly for six months January to June following the method of Das et al., (1983) with necessary

modification in a rural area of West Bengal, India.

**Result**

1499 female *A. subalbatus* were caught off indoor baits and 3214 off outdoor baits significantly greater number of mosquitoes were captured from outdoor baits. Out of 1499 (31.81%) mosquito caught from indoor baits, 1012 (21.47%) 487 (10.33%) were caught off bovid and human baits respectively. Out of 3214 (68.19%) mosquitoes collected from outdoor baits, 2116 (44.9%) female mosquitoes came to suck blood from the bovid bait and 1098 (23.3%) visited the human bait. Out of a total of 4713 *A. subalbatus* caught 3128 (66.37%) visited bovid baits, both indoors and outdoors where as 1585 (33.63%) female mosquitoes came to imbibe blood from human baits, both

indoors and outdoors. Female *A. subalbatus* visited bovid baits two times higher than human baits. The percentage was calculated in reference to grand total (4713) (Table 1) and graphically represented in fig. 1.

**Table 1. Total number of *Armigeres sabalbatus* caught off human and bovine baits, both indoor and outdoor from January 2013 to June 2013.**

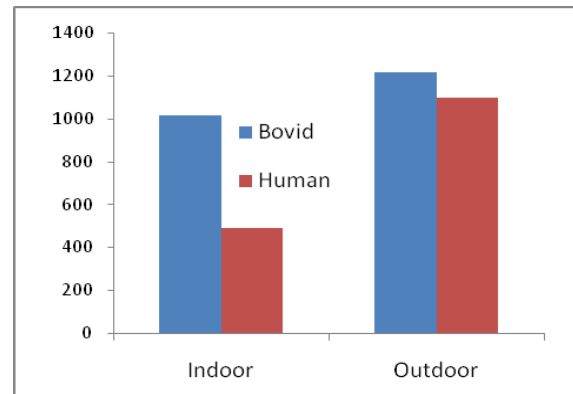
Biotope	Bovid & %	Human & %	Total & %	Result
Indoor	1012 21.47%	487 10.33%	1499 31.81%	z= 22.42  p< .001
Outdoor	2116 44.90%	1098 23.30%	3214 68.19%	
Total	3128 66.37%	1585 33.63%	4713 100%	

To test whether there prevailed any preference of baits among *A. subalbatus* mosquitoes single proportion test was performed.  $z = 22.42$ ,  $p < .001$  which meant that the preference of baits was significantly 50% greater in bovine bait than human bait.

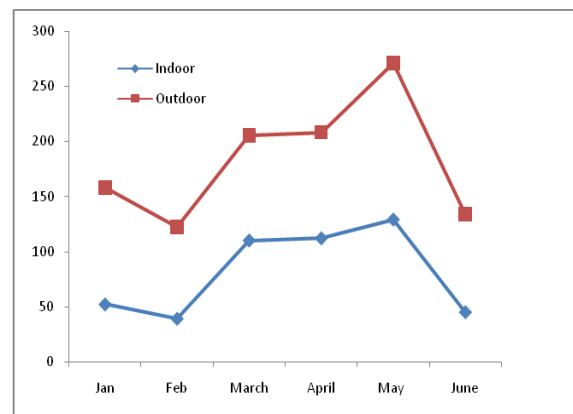
**Table 2. Month wise indoor and outdoor collection of *Armigeres subalbatus* off human baits and bovid baits for the period extending from January 2013 to June 2013.**

Month	Human		Bovid		Total
	Indoor	Outdoor	Indoor	Outdoor	
Jan.	52	158	112	309	631
Feb.	39	122	67	112	340
Mar	110	205	190	442	947
April	112	208	212	452	982
May	129		283	521	1204
June	45	134	148	282	609
Total	489	3098	1012	2116	4713

Table 2 show that though this species was active during all the six months from January to June the maximum number (1204) was recorded in May and graphically represented in fig 2. Minimum number (340) was collected in the month of February.



**Fig. 1. Total number of *Armigeres sabalbatus* caught off human and bovine baits, both indoor and outdoor from January 2013 to June 2013.**



**Fig. 2. Month wise indoor and outdoor collection of *Armigeres subalbatus*.**

### Discussion

It has been found that in villages of West Bengal people often share animal sheds as the resting place. In such situation when human and animal are placed side by side to whom *A. subalbatus* mosquitoes will be attracted most.

As a whole *A. subalbatus* mosquitoes prefer bovid in significantly larger number (3128 i.e., 66.37%) than human beings (1585 i.e., 33.63%). The trend is same both indoors and outdoors, in all six months through outdoor attracting activity to both type of baits (bovid : human = 2116 : 1098) is significantly higher than indoor attracting activity (bovid : human = 1012 : 487)

This again pointed out that *A. subalbatus* mosquitoes on the one hand are Zoophilic and on the other hand predominantly exophagic.

The outdoor collection of *A. subalbatus* off human bait and bovid baits separately was higher than that of indoor bovid bait collection. So, it may be concluded that they are endophagic in nature.

It is pertinent to mention that a predominant member of zoophilic 33.63% of *A. subalbatus* mosquitoes can attack man even in presence of its preferred bovid hosts, creating nuisance in the human locality and in such place where man and bovid live side by side.

#### **Reference**

Barr, A. R. and Chellappah, W.T. (1964). The Colonization and laboratory maintenance of *Armigeres subalbatus* (Conquillet). In proceedings : Symposium on culture procedures for arthropod vector and their biological agents Gainesville. Fla. U.S.A. 30<sup>th</sup> September to 4<sup>th</sup> October 1963. *Bull. WHO.* 31(4): 433 – 632.

Das (Sil), Puspita, Bhattachary, S., Chakraborty, S., Palit, A., Das, S., Ghosh, K. K. and Hati, A. K. (1983). Diurnal man biting activity of *Armigeres subalbatus* (Conquillet 1898) in a village of West Bengal. *Ind. J. Med. Res.* 78 : 794 – 798.

Dilofilaria, worm from wild caught *Armigeres subalbatus* (2001 & 2002) [www.imr.gov.my/affi/who CE. htm](http://www.imr.gov.my/affi/who CE. htm) .

Hati, A. K. (2010). Medical Entomology (3<sup>rd</sup> Edition), Allied book agency Kolkata.

Pandian, R.S. and Chandreshekar, M.K. (1980). Rhythms in the biting behaviour of a mosquito *Armigeres subalbatus*, *Oecologia*, 47: 89 – 95.

Vector Biology and Control. (2002). Designed and maintained by VCRC @ VCRC (2002) population dynamics of *Armigeres subalbatus* <http://pandicherry.nic.in/fil-free/vcrc/popdy htm>.