SEASONAL PREVALENCE AND ANOPHELINE MOSQUITO FAUNA OF TARAI REGION UTTARAKHAND (INDIA)

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Abstract: The present study on the seasonal prevalence and faunal diversity of anopheline was investigated at two selected localities of Tarai region of uttarakhand between January 2015 to December 2016.A Total of 7491 specimens of anophelines were collected, which belong to 10 species. The most abundant species was An.culicifacies, An.aconitus, An.nigerrimus, An.maculatus respectively. While An.varuna was recorded in least number. The density of anophelines starts to increase in summer season, and peaked in rainy season. Lest number in winter season.

INTRODUCTION

Information on the mosquito fauna of Tari belt of uttarakhand is mainly based on studies carried out in connection with the epidemiology and control of malaria. Robertson (1909), Cameron (1921), Nagpal and Sharma (1983), and Phlillips (1924), recorded a few anophelines. In subsequent studies Clyde (1931), Srivastva (1950), Srivastva and Diwan (1951), Issaris *et.al.* (1953) and Rahman *et.al.* (1956) recorded the existence of about 10-17 anopheline species. Wattal *et.al*. (1967) recorded 4 anopheline species 6 species of *Culex* and 1 of *Aedes.* Nagpal and Sharma (1983) reported 3 species of genus anophelies *i.e. A.aitkenii, A.lindesayi* and *A.kochi* were collected for the first time this belt. Shukla *et.al.* (1995) recorded Bionomics of vector species *An.fluviatilis* is a potential malaria vector. Later on Shukla *et.al.* (2001), Pemola Devi *et.al* (2006),Shukla *et.al*(2007),and Anamika *et.al*. (2011). Intensive and extensive mosquito fauna surveys were done in Different zone of Tarai and Garhwal region of uttarakhand.

MATERIAL AND METHODS

Tari region stretches from Sarda River on the East to Kashipur in the West laying between 28^{o} 53" and 29^{o} 26" North latitude and between 78^{o} 53" and 80^{o} East longitude. The belt comprises six Tehsils. Viz. Kashipur, Bazpur, Gadarpur, kitchha, Sitarganj and Khatima. But survey carried out in Kashipur main city and Bajpur urban and forested area.

Adult mosquitoes were collected with the help of suction tube from different resting places viz, Cattle shed, human dwelling, mixed dwellings, and other man made structure. Mosquitoes were also collected by pyrethrum-spray. Immature were collected from ponds, canals, pits, wells, tree crevices etc. and kept in field laboratory until adult emergence. All freshly emerged mosquitoes were killed with ether and packed in cellophane papers. Mosquitoes were identified with the key of Christophers (1933), Barraud (1934) and catalogue of knight and Stone (1977).

RESULTS AND DISCUSSION

A total of 7491 anopheline mosquitoes collected in two surveys of Tarai. Ten species of anopheles were collected viz, *An.aconitus, An.culicifacies, An,fiuviatilis, An,stephensi, An.maculatus, An.nigerrimus, An.gigas An.vagus, An.varuna* and *An.pallidus.* In a study on mosquito fauna of Tarai belt Nagpal and Sharma (1983)were identified in to twenty nine mosquito species belonging to 8 genera and three species of genus Anopheles *i.e. An.aitkenii, An,lindesayi* and *An,kochi* were not found in this survey. Shukla *et.al* (2007) recorded nine anopheline species from Nainital which includes *An.nigerrimus* and*An. baarbirostis.* Which were *An.barbirostis* were not found in this survey. The result of the present studies revealed that the densities of malaria vectors are influenced by rainfall pattern which started to increase from the beginning to the winter season (Nov-Feb) with peak densities towards the end of rainy season (july-oct) for most anophelines except *An.stephensi. An.culicifacies,An,aconitus, An.nigerrimus* and *An.maculatus* Table (01).This occurrence is likely due to increase in environmental temperature suitable for growth and development of the larvae and the numbers of larval habitat during the study period. Higher densities of anopheles were sampled from kashipur and followed by Bajpur. *An.varuna* was recorded least number in both selected site. (Table02).The development of an intensive irrigation net-work to increase agricultural production, *An.stephensi, An.culicifacies* and *An.aconitus* have been incriminated as vectors in Tari.

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