

SEASONAL DYNAMICS AND ABUNDANCE OF *CULICOIDES* SPP. IN THE VICINITY OF FARM ANIMALS IN TELANGANA, INDIA

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ABSTRACT : *Culicoides* spp. are the biting midges that act as biological vectors for the Bluetongue virus (BTV) disease and serve as the primary means of transmission from an infected animal to a healthy animal. A study was conducted in the vicinity of sheep and goat, cattle and buffalo sheds to know the prevalence and seasonal abundance of dominant species. A total of 28,800 midges were collected from the sheep and goat, cattle and buffalo sheds located at the Northern parts of Telangana from September 2017 to August 2018 at monthly intervals using Centres for Disease Control (CDC) - UV (Ultra-Violet) light trap equipped with 6 volts blue light tube. The abundance of midges was noticed maximum in the September month and declined drastically in the December month. A total of nine species were identified and appeared consistently with higher abundance throughout the study period. The study suggested continual breeding activity of the important two species like *Culicoides oxystoma* Kieffer and *Culicoides imicola* Kieffer in the vicinity of farm animals.

Key words : *Culicoides*, Telangana, prevalence, seasonal abundance.

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INTRODUCTION

The haematophagous insects are worldwide distributed and approximately 1500 species have been identified worldwide (Borkent, 2014). And significantly affected by climate and weather and frequently influence the incidence and overall severity of Bluetongue Virus (BTV). These *Culicoides* are the most important animal and human pests, which causes severe annoyance to man and animals through their painful biting attacks which cause significant economic losses and is a prime vector for various viruses causing Bluetongue virus (Venter *et al*, 1999; Zientara *et al*, 2014 and Foxi *et al*, 2016), African horse sickness (AHS) virus (Waal *et al*, 2016), Epizootic hemorrhagic disease, Akabane virus, Bovine ephemeral fever virus, Vesicular stomatitis virus, Equine encephalosis virus (Meiswinkel, 2004 and Purse *et al*, 2015), Schmallenberg virus etc (Pages *et al*, 2018). *Culicoides* also transmits protozoan parasites like *Haemoproteus*, *Leucocytozoon* and *Trypanosoma everetti* (Bernotiene *et al*, 2020) and *Plasmodium* in birds and filarid worms like *Onchocerca cervicalis*, in horses

and *Mansonella perstans* and *M. ozzardi* and *Dipetalonema* spp. in humans and various filarid worms in other mammals (Prasad and Bhatanagar, 2000). Udupa (2001) indicated that *C. oxystoma* and *C. imicola* were the dominant species and the prime vector of BTV based on its higher abundance coinciding with Blue Tongue (BT) outbreaks season. Different species of midges have different host preferences (Lassen *et al*, 2011). Hence, considering the significance of midges a study was conducted on identification, distribution and seasonal abundance of dominant species of the *Culicoides* associated with livestock in various farms of Telangana, so that species of midges involved in the transmission of BT disease can be predicted. This data will be helpful for further investigation of these species as the potential species of BTV through their vector capacity and vector competence studies.

MATERIALS AND METHODS

The agro-climatic condition of the Northern part of Telangana is known for high temperature, humidity and mean annual rainfall about 1800 mm from Southwest