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First report of *Culex (Lophoceraomyia) cinctellus* in Sri Lanka

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Disease epidemics caused by mosquito vectors have been a significant challenge faced by the health sector of Sri Lanka. Routine entomological surveillance is practised as a key approach in monitoring the population dynamics of mosquito vectors, which is vital for epidemic management. A recent preliminary surveillance conducted in Banduragoda Public Health Inspector (PHI) in Mirigama Medical Officer of Health (MOH) area has reported the presence of *Culex (Lophoceraomyia) cinctellus*, for the first time in Sri Lanka. Therefore, the current study was conducted to validate the presence of *Cx. cinctellus*, based on morphological and molecular evidence. Larval and adult surveillances were conducted from October 2019 to April 2020 at fortnight intervals in the Banduragoda Public Health Inspector (PHI) area. Standard siphoning methods were used in larval surveillance, while Cattle Baited Traps (CBT), Gravid Traps (GT), Light Traps (LT), Bird-Baited Traps (BBT), Dog Baited Traps (DBT) and diurnal human landing collections were used for adult surveillance. The collected specimens were transported to the Entomology Laboratory of the Medical Research Institute (MRI). The immature larvae were reared up to fourth instar stage. Adults and reared larvae were identified to the species level using standard morphological keys. Further, DNA extracted from the head, and thoracic regions of the reared mosquitoes were sequenced. Subsequently, the sequences were analysed for sequence identity using NCBI BLAST analysis and Geneious Trial (version 7.1.3). Adults of *Cx. cinctellus* were reported from BBT and in human baited collections. Morphological features such as well-developed pulvilli, wing with vein 1A ending before the apex of cross vein mcu, basal transverse pale bands in abdominal terga and two labial basal setae in proboscis were identified as unique features of *Cx. cinctellus*. Females of *Cx. cinctellus* reported a mean thoracic length of 0.58 ± 0.02 mm, thoracic width of 0.63±0.02 mm. The average abdominal length and width were 2.15±0.03 mm and 0.61±0.01 mm respectively, along with a wing length of 2.91±0.02 mm. The results of the molecular analysis further confirmed the morphological identification. This finding warrants the importance of strengthening routine entomological surveillance activities further to study the dispersal and population dynamics of *Cx. cinctellus* in Sri Lanka.

Keywords: *Culex, Culex cinctellus, Lophoceraomyia,* Mosquito Sri Lanka