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Blood feeding preference of Culex pipiens in the West Nile virus endemic metropolitan area of Berlin

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West Nile virus (WNV) is a mosquito-borne arbovirus endemic in Berlin since 2018, that replicates in an enzootic cycle between *Culex pipiens* and birds as reservoir hosts. Little is known of *Culex pipiens* host feeding preference in urban areas, especially with respect to the bird species acting as the main amplification host(s) for WNV.
To gain insight into host feeding preferences, the blood-fed specimens of a collection of about 100,000 mosquitoes collected in 2023/24 will be analyzed. A subset of 229 blood-fed mosquitoes were analyzed so far using PCR targeting the vertebrate-specific cytochrome c oxidase subunit I (COI) gene, followed by Sanger sequencing. In total, 36 vertebrate host species were identified. The 29 non-*Culex*-specimens were found to have mainly fed on mammals (96.4%, humans, foxes, squirrels, mice), whereas 89.5% of the 200 *Culex* mosquitoes had fed on birds and only 10.5 % on mammals. In total, 27 avian hosts were identified, which were mainly blackbirds (22.5%), pigeons (20%), sparrows (13.5%), robins and great tits (each 7%). One *Culex pipiens* that had fed on a common redstart was tested positive for WNV.
WNV transmission is dependent on vector feeding on competent amplification hosts. The identification of the bloodmeal sources of WNV vectors is thus important to identify the key players of the enzootic WNV amplification cycle and of hotspot areas, where human and bird infection risks are high.

Keywords

Mosquito, blood-feeding, West Nile virus, vector ecology

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No, I am not a Junior Scientist.

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