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Collaborating Centre for Zoonoses in Europe

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Datum: 27.01.2022

Master thesis subject:

Effect of extreme weather conditions on growth and development of the common house mosquito *Culex pipiens*

Culex pipiens species complex is a globally abundant multi-disease vector that transmits, arthropod-borne viruses to both humans and animals. Amongst other pathogens, it is a vector for West Nile virus, recently becoming endemic in also in Germany. In the frame of a project funded by the Alexander-von-Humboldt-Foundation **("Effects of larval environmental parameters and adult bloodmeal sources on the vector competence of genetically different *Culex pipiens* populations for two human-associated lineages of West Nile virus")**, we are investigating the impact of extreme weather conditions on larval upbringing and the possible consequences for vector competence and pathogen transmission.

Project description

The ability of mosquitoes to adapt to different environmental conditions such as fluctuations in nutrition and competition at the larval stage affect their survival and consequently, their ability to transmit diseases.
This study aims to determine the impact of multiple larval breeding conditions including

- Temperature
- Drought and flooding
- Overcrowding
- Starvation and overfeeding

of larvae on the growth and development of *Cx. pipiens* biotype larvae.

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The research is carried out in Biosafety Level 2 (BSL2) insectaries in the Laboratory of Vector Capacity (https://www.fli.de/de/institute/institut-fuer-infektionsmedizin-imed/labore/labor-fuer-vektorkapazitaet/) in the Friedrich-Loeffler-Institut.
The different environmental conditions will be tested in several replicates. Survival, development time and morphological alterations will be monitored in all life stages and statistically compared.
The altered breeding conditions will give insight to factors related to climate change that may influence and enhance the survival of this mosquito for possible control and disease management aid.

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Mit freundlichen Grüßen

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