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The Rise of the Tiger? Competitive Interactions between *Aedes albopictus* and Native Species in a Changing Climate

Inhalt

The presence of *Aedes albopictus* in Germany raises concerns about its potential ecological impact on native mosquito species, particularly *Culex* spp. and *Culiseta* spp. This study investigates whether *Ae. albopictus* exhibits competitive superiority over native mosquito species under varying temperature regimes, food concentrations and habitat structure and size, and sublethal exposure to *Bacillus thuringiensis* (BTI), testing the hypothesis that *Ae. albopictus* dominates under environmental pressure due to greater stress resilience. Preliminary competition experiments were conducted in 6-well plates at 18°C and 25°C, using L1 larvae under two food levels (4 and 6mg Tetra Pleco per well). Development time, emergence rate, and mortality were monitored across two temperature regimes (25°C-19°C) and the various stressors. In a second step the competition assays were also conducted across different container sizes to include larval habitat size as a stressor (6-well plates, urine cups, 300mL containers, 500mL flat and high containers, and 1L trays).

The main experiment used field-collected eggs from ovitraps across urban areas in Hannover. Eggs were reared in cold chambers at 18°C and subjected to competition assays. Species composition of ovitrap catches was assessed using emerged adults. Different stressors were tested at 19°C and 25°C.

These findings will help to identify which larval habitats support the presence of the tiger mosquito in the context of climate change.

Keywords

Aedes albopictus, *Culex pipiens* spp., Competition

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Graduate Student

Junior Scientist Status

Yes, I am a Junior Scientist.

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