

Brazil '19

Conference Booklet
4th November 2019

Contents

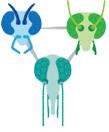
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Location

UFMG Veterinary School, Av. Antônio Carlos 6627, Caixa Postal 567
Campus Pampulha da UFMG, CEP: 31270-901, Belo Horizonte, MG





Welcome from Brazil

Dear colleagues and guests,

On behalf of the local organizing committee and the organizing committee of the Pirbright Institute, it is my great pleasure to welcome you to Belo Horizonte, MG for the Second International Gnatwork Workshop, Brazil '19, held on 4 – 8 November 2019 at Escola de Veterinária da UFMG, Belo Horizonte, Brazil. The meeting is sponsored by The Pirbright Institute, UK (TPI) and held in collaboration with the Universidade Federal de Minas Gerais (UFMG), Belo Horizonte, Brazil.



The Gnatwork workshop brings together an international group of researchers on biting midge, blackfly and sandfly biology. The weeklong workshop will consist of a one-day conference, where 10 researchers will present important scientific data and highlight the current knowledge in the field. At the end of the conference, we invite you to participate in the poster presentation by the early career researchers, which will be a great opportunity to interact with the participants while enjoying a “beer break”.

Following this, a four-day workshop will be held to develop the skills of 30 early career researchers with a basic suite of expertise on these three vector groups. The four-day hands-on training workshop and interactive lectures will cover topics such as vector biology, capture techniques, morphological identification, molecular barcoding, and statistical analysis.

The goals of these International Workshops are to improve the link between researchers from different countries by creating a global community of researchers studying the biology of biting midges, blackflies and sandflies; as well as to offer training and qualification of early career researchers in the capture and identification techniques of the three vector species, as well as in experimental design.



We hope to achieve our goals, creating a worldwide network of scientists working with these three neglected vector groups. We thank each of you for attending our conference and workshop and bringing your expertise to our gathering.

Dr Maria Isabel Maldonado Coelho Guedes
Local Organizing Committee
Universidade Federal de Minas Gerais

Welcome from the Gnatwork

We are excited to welcome you to Brazil for our second international meeting of the Gnatwork. The Gnatwork was established to bring together workers on blackflies (Simuliidae), sandflies (Psychodidae) and biting midges (Ceratopogonidae) from around the world. We hope that the Gnatwork annual meetings will enable individuals working on these vectors to meet and exchange ideas regarding technical issues that arise when working on small biting flies. Our post-meeting workshops will also teach technical skills to early-career researchers within vector-borne diseases.



We look forward to talking to you all over the course of the meeting and hope that you find the meeting both enjoyable and productive.

Dr Emma Howson
Network Manager of the Gnatwork



Agenda

08:30 - 09:30 Registration

Theme 1: Introduction and vector research within South America Chair: Dr Simon Carpenter

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| 09:30 - 09:40 | Conference welcome Professor Zélia Inês Portela Lobato |
| 09:40 - 10:05 | The Gnatwork: membership and opportunities Dr Simon Carpenter |
| 10:05 - 10:30 | <i>Culicoides</i> as biological vectors of BTV and EHDV in Brazil: what do we know (and don't know) so far Dr Maria Isabel Maldonado Coelho Guedes |

Break

10:30 - 11:00 Tea Break

Theme 2: Introduction to the Gnatwork Vectors Chair: Prof Mary Cameron

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| 11:00 - 11:25 | Sandfly biology and their role as vectors Professor Mary Cameron |
| 11:25 - 11:50 | The Biology and role of <i>Culicoides</i> as vectors Dr Claire Garros |
| 11:50 - 12:15 | Biology and vectorial roles of blackflies Professor Robert Cheke |
| 12:15 - 12:40 | Aggregation & sex pheromone in the complex <i>Lutzomyia longipalpis</i> in Brazil Dr Reginaldo Brazil |



Lunch

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| 12:40 - 14:00 | Lunch |
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Theme 3: Trends in vector research Chair: Dr Karin Darpel

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| 14:00 - 14:25 | Of creatures big and very small – veterinary aspects of vector-borne pathogen transmission Dr Karin Darpel |
| 14:25 – 14:50 | Research activities targeted to Visceral leishmaniasis vector (<i>Phlebotomus argentipes</i>) control in Bangladesh Rajib Chowdhury |
| 14:50 – 15:15 | Taxonomy of phlebotomine sand flies, epidemiology, diagnosis and control of leishmaniasis Dr Edelberto Santos Dias |
| 15:15 – 15:40 | Tripartite interaction: <i>Leishmania</i> , microbiota and <i>Lutzomyia longipalpis</i> Thaís Bonifácio Campolina |

Reception and poster session

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| 16:00 - 17:30 | Reception and poster session |
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Organising Committee

Brazil

Dr Maria Isabel Maldonado Coelho Guedes
Assistant Professor
Universidade Federal de Minas Gerais

UK

Dr Emma Howson
Network Manager
The Pirbright Institute, UK

Alix Connelly
Network Administrator
The Pirbright Institute, UK

Dr Simon Carpenter
Network Director
The Pirbright Institute, UK

Professor Mary Cameron
Network Co-Director
The London School of Hygiene and Tropical Medicine



Photoperiod induced effects on female fecundity and egg diapause in *Aedes aegypti* from a temperate region of South America

Cristian M. Di Battista, María Sol De Majo, Pedro Montini, Verónica Loetti, Sylvia Fischer & Raúl E. Campos

Facultad de Ciencias Naturales y Museo. Universidad de Buenos Aires, Argentina

Mosquito populations in temperate regions are confronted with unfavorable conditions such as low winter temperatures. These conditions are anticipated by a short photoperiod, which is a major cue to induce changes in the life history of insects to survive these conditions. So far, no effects of photoperiod on the female fecundity or on eggs diapause of *Aedes aegypti* are known, despite the fact that this species is expanding to temperate regions. Thus, the aim of the present study was to assess the effects of photoperiod on the fecundity of females and on their ability to lay diapausing eggs in a population of *Ae. aegypti* from a temperate region (Buenos Aires City, Argentina). To this end, we exposed both the parental generation and the eggs to short-day (SD: 10L: 14D) and long-day (LD: 14L: 10D) photoperiods, and studied the fecundity of females, the hatching and mortality of eggs. Egg hatching and mortality were assessed for different eggs ages (from 14 to 112 days). The individuals from the SD photoperiod showed a lower fecundity and laid eggs with lower hatching response. A trend to higher hatching with increasing egg age was recorded in all treatments. Eggs mortality was also lower in the SD photoperiod. Our results show changes in female fecundity in response to photoperiod. Furthermore, the inhibition of hatching and the lower mortality of SD eggs suggest that they are in diapause, an ability that has not been reported previously in *Ae. aegypti*, which would explain its expansion to temperate regions.