



Loganathan Ponnusamy



Principal Research Scholar

Ph. D., M. S. Swaminathan
Research Foundation, University
of Madras, India

M. Sc., Vivekananda College,
Chennai, University of Madras,
India

B.S., University of Madras, India

Address:

Dept. of Entomology & Plant
Pathology
North Carolina State University
Campus Box 7647, Dearstye
Entomology Building
3230 Ligon Road,
Raleigh, NC 27695-7647 USA

Phone: 919-515-8882

Email: Loganathan_ponnusamy@
ncsu.edu

Arthropod-Microbe Interactions

Research emphasis:

Dr. Loganathan (Logu) Ponnusamy's main areas of research include both cultivation-dependent and cultivation-independent methods to study the microbial **semiochemical and insect behaviors**. He isolated and screened different bacterial isolates for oviposition attractancy through behavior bioassays, the most attractive bacteria was formulated using sodium alginate encapsulation techniques for long time survival of the bio-active bacteria; and the **"bacterial beads"** then lyophilized for long-term storage at room temperature long term survival of bacteria for a novel approach to attract *Aedes* spp., the principal mosquito vector of dengue and Zika viruses. He is also working to understand the **microbiome** and pathogens in ticks and chiggers using high-throughput sequencing.

Publications and Abstracts:

Paz-Soldan, V. A., J. Yukich, A. Soonthorndahada, M. Giron, C. S. Apperson, L. Ponnusamy, C. Schal, A. C. Morrison, J. Keating and D. M. Wesson. 2016. Design and testing of novel lethal ovitrap to reduce populations of *Aedes* mosquitoes: Community-based participatory research between industry, academia and communities in Peru and Thailand. *PLoS One*: 11(8): e0160386.

Ponnusamy, L., C. Schal, C. Arellano, D. M. Wesson and C. S. Apperson. 2015. Oviposition responses of *Aedes* mosquitoes to bacterial isolates from attractive bamboo infusions. *Parasites and Vectors* 8:486.

Kakumanu, M., L. Ponnusamy, H. Sutton, S. Meshnick, W. Nicholson and C. S. Apperson. 2016. Development and validation of an improved PCR method using 23S-5S intergenic spacer for detection of Rickettsiae in *Dermacentor variabilis* ticks and tissue samples from humans and laboratory animals. *Journal of Clinical Microbiology* 54:972-979

Ponnusamy, L., A. Gonzalez, W. Van Treuren, S. Weiss, C. M. Parobek, J. J. Juliano, R. Knight, R. M. Roe, C. S. Apperson and S. R. Meshnick. 2014. Diversity of Rickettsiales in the microbiome of the lone star tick, *Amblyomma americanum*. *Applied and Environmental Microbiology* 80:354-359.

Applications:

- Microbial semiochemical and insect behaviors
- Arthropod-microbe interactions
- Microbiome Profiling in arthropods
- Detection and identification of bacterial pathogens in ticks

Research Strengths:

- 16S metagenomic sequencing
- Bioinformatics
- Culturing techniques
- Formulation of microbes