

Tentative Outline
Special Issue for Current Organic Chemistry

Guest Editor(s): Giovanni Benelli

**TITLE: Natural Products As Effective Weapons Against
Mosquito-Borne Diseases**

Aims & Scope:

Mosquitoes (Diptera: Culicidae) represent a key threat for millions of people worldwide, since they act as vectors for important pathogens and parasites, including malaria, yellow fever, dengue, West Nile, chikungunya, and filariasis. In this scenario, vector control is a crucial prevention tool. Culicidae larvae are usually targeted using organophosphates and insect growth regulators. Indoors residual spraying and insecticide-treated bed nets are also employed to reduce transmission of malaria in tropical countries. However, these chemicals have strong negative effects on human health and/or the environment, and induce resistance in a number of mosquito species. On this basis, eco-friendly tools have been recently implemented to enhance control of mosquito vectors. Renewed interest has been devoted to the potential of Sterile Insect Technique for suppression of mosquito vectors, with special reference to the genus *Anopheles*. Furthermore, huge efforts have been carried out investigating the efficacy of plant-borne compounds against Culicidae. Many compounds have been reported as excellent toxics against mosquitoes, acting as ovicidal, larvicidal, adulticidal, oviposition deterrent, growth and/or reproduction inhibitors and/or adult repellents. However, much remains to know in this fast-growing research area, with special reference to chemical standardisation of mosquitocidal compounds of botanical origin, exploitation of plant-borne industrial by-products against mosquitoes, development of eco-friendly long-lasting mosquito repellents and mosquitocidal silver nanoparticles synthesized using plant extracts. In this Special Issue, I bring together a number of top-ranked international scientists to discuss the most relevant issues and update the advances about eco-friendly control tools against mosquito vectors.

Key words: Arthropod-borne diseases; Diptera Culicidae; Eco-friendly control tools; Essential oils; Mosquitocidal compounds; Long-lasting mosquito repellents; Nanoparticles; Oviposition deterrents

Subtopics:

- Structure-function relationships of mosquitocidal phytochemicals
- Industrial by-products of plant origin and their bioactivity against mosquitoes of medical importance
- Human-bait evaluation of long-lasting formulations of plant-borne mosquito repellents
- Field evaluation of oviposition deterrence induced by plant-borne compounds against mosquito vectors
- Mosquitocidal activity and non-target effects of green-synthesized nanoparticles synthesized using plant-borne molecules

Approximate Schedule:

- Manuscript submission deadline: November 30th 2015.
- Peer-Review Due: January 30th 2016.
- Revision Due: March 30th 2016.
- Notification of Acceptance by the Guest Editor: May 30th 2016.