

# Invitation

## Current challenges of mosquito population management

Wednesday  
4 March 2020  
17:00-18:00

Room Lemosos,  
Andreas Themistocleous Building  
Cyprus University of Technology,  
Athinon Street,  
Limassol



Cyprus  
University of  
Technology

Department of  
Chemical Engineering

The Department of Chemical Engineering of the Cyprus University of Technology, invites you to an open lecture on:

## **Current challenges of mosquito population management**

**Speaker: Dr. Dusan Petric**

### **Abstract:**

Knowledge on the ecology of the local population of targeted mosquito species is of crucial importance in designing an efficient control strategy. Controlling masses of floodwater mosquitoes that only occasionally transmit mosquito-borne diseases (MBD) is utterly different to controlling mosquitoes that breed in and around human settlements and could transmit detrimental MBD (e.g., *Aedes* invasive mosquitoes and *Culex pipiens*). When mosquito nuisance is the main problem (e.g., floodwater mosquitoes in Europe), the quality control (QC) of control measures might be conducted to inform administration (local, regional or governmental) about the performance of mosquito control operator(s) involved. The costs of mosquito control are relatively high, and it is surprising that in Serbia, only 8.3% of interviewed municipalities have introduced independent quality control in their programmes. The absence of QC practice might be due to the lack of knowledge and the fact that municipality control programmes were designed by the non-specialists from administration in close collaboration with pest control operators. Besides, emergency control measures to stop the outbreak of MBD are often not followed by evaluation of the efficacy of the treatments; therefore, crucial data about a reduction on vector population needed to stop the disease spread are lost. Quality control of mosquito treatment could be done as a part of a well-designed surveillance program covering the mosquito breeding season or specifically at the time of treatment. Specific QC includes measuring of several factors before (e.g., quality of the pesticide and the equipment, size of mosquito population, weather factors), during (e.g., weather factors, application rate and quality of the droplets, coverage of the treatment area, mortality of caged mosquitoes) and after treatment (e.g., size of mosquito population, weather factors). Many incorrect management practices were observed during the QC of the treatments, that might be only improved through sustainable quality control approach accepted by all stakeholders involved. To maintain the quality and escape conflicting interests, QC should be included in the contracts for each mosquito control programmes

Authors share an opinion that the responsible authorities should consider reevaluating their mosquito control programmes and eventually include QC for better reduction of the mosquito population density, possibly below the epidemiological and the nuisance thresholds. Also, QC would provide vital information for cost-effectiveness estimates, evaluation of other control/prevention measures (including community participation), and resistance management. The QC needs to be independent, objective and science-based, involving skilled staff and technicians.

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**Bio:**

Dušan Petrić PhD is a professor and head of the laboratory for Medical and Veterinary Entomology at the Faculty of Agriculture, University of Novi Sad, Serbia. He has researched mosquitoes, black flies, sand flies, and biting midges since 1981. In the year 2013, he started investigating the application of the Sterile Insect Technique (SIT) against *Ae. albopictus*. Recently he is also interested in the surveillance and risk assessment of emerging vector-borne diseases in Europe. He has 39 years of experience in mosquito research and was associate research fellow in the Institute of Zoology, University of Heidelberg, and KABS/GFS, Germany (1990–2000), and visiting professor at the University of Manchester, School of Biological Sciences, Department of Environmental Biology, U.K. Recently he was organising the field studies and training in mosquito identification and sampling in Albania, Bosnia & Herzegovina, Bulgaria, Cyprus, Kosovo, Montenegro, Romania, Serbia and Turkey. He is providing expert consultations to international bodies such as the European Centre for Diseases Prevention and Control (ECDC), European Food Safety Agency (EFSA), and International Atomic Energy Agency (IAEA). He authored books (Kluwer Academic, Springer), book chapter (Nova Science Publishers), technical reports (ECDC, EFSA), numerous refereed scientific publications (CI= 1,000; h=14, Scopus), and is Associate Editor of Medical and Veterinary Entomology. He has coordinated 2 national and 4 international projects. He was a member of the Core Matrix Mosquito Group of VectorNet project (EFSA/ECDC), is Deputy Chair of Aedes Invasive Mosquitoes (AIM) COST Action, Deputy Leader for mosquitoes in the new VectorNet project (EFSA/ECDC) and National coordinator of IAEA project on AIM. His scientific interests have been focused on the developing of mosquito surveillance and monitoring methods, and the implementation of environment-friendly control strategies.