HORIZON 2020

Better tools for combating insect borne diseases by understanding influences on the fate of common pesticides in paint formulations

Fact Sheet

Project Information

ChiPyrNMR

Grant agreement ID: 749083

DOI
10.3030/749083

Project closed

EC signature date
14 February 2017

Start date
1 September 2017

End date
31 August 2019

Funded under
EXCELLENT SCIENCE - Marie Skłodowska-Curie Actions

Total cost
€ 165 598,80

EU contribution
€ 165 598,80

Coordinated by
NOURYON CHEMICALS B.V.
Netherlands

Objective

Malaria, Zika virus, dengue fever and yellow fever are mosquito transmitted diseases for which a vaccines either do not exists or are not widely available. Prevention control is the main way to reduce their spread, and the use of insecticides constitutes one of the key measures recommended by World Health Organisation. New innovative methods of bringing the insects into contact with the insecticides include the development of insecticidal paint with the advantage of safer application, targeted dosing and significantly reduced risk of collateral damage to humans and the environment. This project will address some of the challenges in developing these solutions.

Pyrethroids are one of the best insecticides for public health use but suffer from hydrolysis and photo-degradation. Little is known about how their application in paint formulations affects this behavior. At a chemical level the biological activity of the individual enantiomers is determined by the configuration of their chiral centers, so accurately quantifying the enantiomeric composition is critical to tracking potential degradation. The aim of this project is to generate robust methods for a better understanding of the fate of insecticides in complex matrices like paint. Once the nature of the degradation products and the related mechanisms is clear, the formulation can be adjusted to minimize the occurrence of degradation or enhance active ingredient protection. The kinetic analysis of the degradation processes and the interaction/stability studies are best performed in-situ avoiding potentially invasive extraction sample preparation steps, so the powerful tools of advanced NMR spectroscopy will be exploited to characterize these phenomena. The knowledge gained will be used to validate/explain multidisciplinary laboratory biological trial results on mosquitoes and be able to be exploited more widely to other systems and support the research into other compounds for potential deployment in this way.

Fields of science (EuroSciVoc)

medical and health sciences > health sciences > **public health**

natural sciences > biological sciences > microbiology > **virology**

natural sciences > physical sciences > optics > spectroscopy > **absorption spectroscopy**

natural sciences > biological sciences > zoology > **entomology**

natural sciences > biological sciences > zoology > **invertebrate zoology**

Programme(s)

H2020-EU.1.3. - EXCELLENT SCIENCE - Marie Skłodowska-Curie Actions MAIN PROGRAMME

H2020-EU.1.3.2. - Nurturing excellence by means of cross-border and cross-sector mobility

Topic(s)

MSCA-IF-2016 - Individual Fellowships

Call for proposal

H2020-MSCA-IF-2016

See other projects for this call

Funding Scheme

MSCA-IF-EF-SE - Society and Enterprise panel

Coordinator

NOURYON CHEMICALS B.V.

Net EU contribution

€ 165 598,80

Total cost

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Address

VELPERWEG 76
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Netherlands

Region

Oost-Nederland > Gelderland > Arnhem/Nijmegen

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

Contact the organisation Website
Participation in EU R&I programmes
HORIZON collaboration network

Last update: 10 March 2023

Permalink: https://cordis.europa.eu/project/id/749083