## Nematicidal activity of naphthoquinones – nematode generation of reactive oxygen species

Carla Maleita<sup>1,2\*</sup>, Ivânia Esteves<sup>2</sup>, Mara E.M. Braga<sup>1</sup>, Isabel Abrantes<sup>2</sup> and Hermínio C. de Sousa<sup>1</sup>

<sup>1</sup> University of Coimbra, Chemical Process Engineering and Forest Products Research Centre, Department of Chemical Engineering, Rua Sílvio Lima, Pólo II – Pinhal de Marrocos, 3030-790 Coimbra, Portugal <sup>2</sup> University of Coimbra, Centre for Functional Ecology - Science for People & the Planet, Department of Life Sciences, Calçada Martim de Freitas, 3000-456 Coimbra, Portugal; <u>\*carla.maleita@uc.pt</u>

Naphthoquinones (NTQ) are naturally occurring compounds in several families of plants. Among NTQ, juglone (JUG) and 1,4-naphthoquinone (1,4-NTQ) were shown to have nematicidal activity against root-knot nematodes (RKN, *Meloidogyne* spp.). This study aimed to infer on JUG and 1,4-NTQ mode of action through the assessment of reactive oxygen species (ROS) generation by observation of *M. luci* second-stage juveniles (J2).

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No *M. luci* J2 treated with water or Tween® 80 generated ROS fluorescence

TICN 2022

- JUG J2 did not exhibit ROS fluorescence but small and multiple vacuoles associated to mortality was detected
- 1,4-NTQ J2 showed fluorescence as evidence of ROS and multiple giant vacuoles

Although these bioactive compounds are promising alternatives to the use of synthetic nematicides to control RKN, their mode of action may be different and should be further investigated

ROS production in *M. luci* J2 after exposure to JUG 250 ppm and 1,4-NTQ at 100 and 250 ppm for three days. At 1,4-NTQ 100 ppm some nematodes remained mobile (A) while others were death (B). Scale bars =  $50 \ \mu m$ 

This research was supported by Fundação para a Ciência e a Tecnologia (FCT), through national funds and the co-funding by FEDER through the Programa Operacional Factores de Competitividade (COMPETE, Portugal) under the projects PTDC/ASP-PLA/2393/2017, PTDC/ASP-PLA/31946/2017, CEECIND/02082/2017; PT2020 Partnership Agreement and COMPETE 2020 (Projects UID/SIA/0404/2020, UIDB/00102/2020), UIDP/00102/2020), ReNATURE (Centro 2020, Centro-01-0145+FEDER-000007) and Instituto do Ambiente, Tecnologia e Vida.