

# **FATTY ACID AND RELATED POTASSIUM Kv2 CHANNEL BLOCKERS: TOXICITY AND PHYSIOLOGICAL ACTIONS ON MOSQUITOES.**

FABIEN DÉMARES <sup>1,\*</sup>, QUENTIN COQUEREL <sup>1</sup>, GARY RICHOUX <sup>1</sup>, KENNETH LINTHICUM <sup>2</sup> AND JEFFREY BLOOMQUIST <sup>1,\*</sup>

<sup>1</sup> Neurotoxicology Laboratory, Entomology and Nematology Department, Emerging Pathogens Institute, University of Florida, Gainesville, FL, USA.

<sup>2</sup> USDA, ARS, Center for Medical, Agricultural and Veterinary Entomology, Gainesville, FL, USA.

\* Correspondence: [fabien.demares@ufl.edu](mailto:fabien.demares@ufl.edu); [jbquist@ufl.edu](mailto:jbquist@ufl.edu); Tel.: +1 (352) 294-5166.

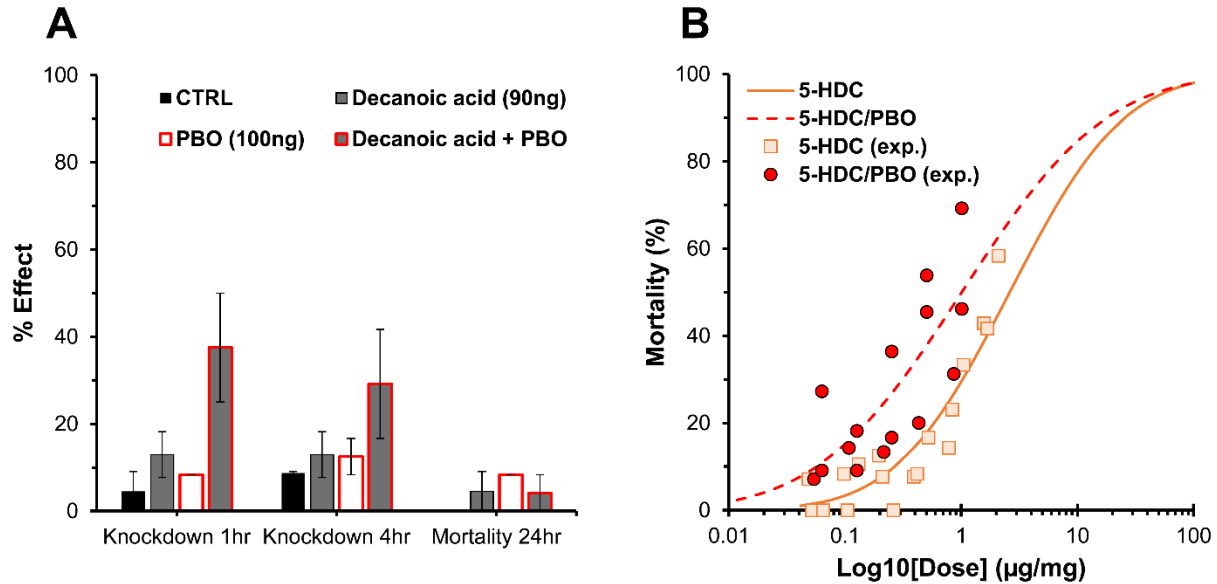
---

## **Supplementary Materials**

**Figure S1. Co-application of piperonyl butoxide (PBO) with fatty acid compounds.**

**Table S1. Comparison of 5-HDC alone and 5-HDC/PBO co-application on *Anopheles gambiae* G3, with probit slopes and KD<sub>50</sub>/LD<sub>50</sub> values.**

**Figure S1.**



**Figure S1. Co-application of piperonyl butoxide (PBO) with fatty acid compounds.** (A) Decanoic acid was tested for one dose ( $LD_{15} = 90$  ng) and co-applied with 100 ng of PBO (which correspond to  $LD_{15}$  as well). Despite a visible knockdown effect (not statistically significant) of co-applied decanoic acid and PBO after 1 and 4 hours, there was no significant synergistic effect on mortality at 24 hours. (B) For 5-HDC, the probit analyses (curves) were calculated from a range of tested doses (colored symbols, experimental values). The slopes and  $LD_{50}$  values have been determined, and are reported in Table S1. For 5-HDC alone,  $LD_{50} = 2.6$  µg; for co-applied 5-HDC/PBO,  $LD_{50} = 1.0$  µg. But the 95% confidence intervals overlap extensively, which means no significant difference between topical application with or without PBO.

**Table S1. Comparison of 5-HDC alone and 5-HDC/PBO co-application on *Anopheles gambiae* G3, with probit slopes and KD<sub>50</sub>/LD<sub>50</sub> values. KD and LD values are in µg/mg of body weight.**

	1 hour		4 hours		24 hours	
	Slope	KD <sub>50</sub>	Slope	KD <sub>50</sub>	Slope	LD <sub>50</sub>
	(SE)	[CI95%]	(SE)	[CI95%]	(SE)	[CI95%]
<b>5-HDC</b>	1.44 (0.07)	0.71 [0.58 - 0.91]	1.28 (0.07)	0.91 [0.66 - 1.41]	1.29 (0.09)	2.62 [1.6 - 6.26]
<b>5-HDC + PBO</b>	1.03 (0.08)	0.23 [0.15 - 0.37]	0.71 (0.08)	0.27 [0.15 - 0.55]	1.03 (0.09)	1.01 [0.56 - 4.35]