

1 **Supplementary information**

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5 **Enzymatic degradation of organophosphorus insecticides decreases toxicity**
6 **in planarians and enhances survival**

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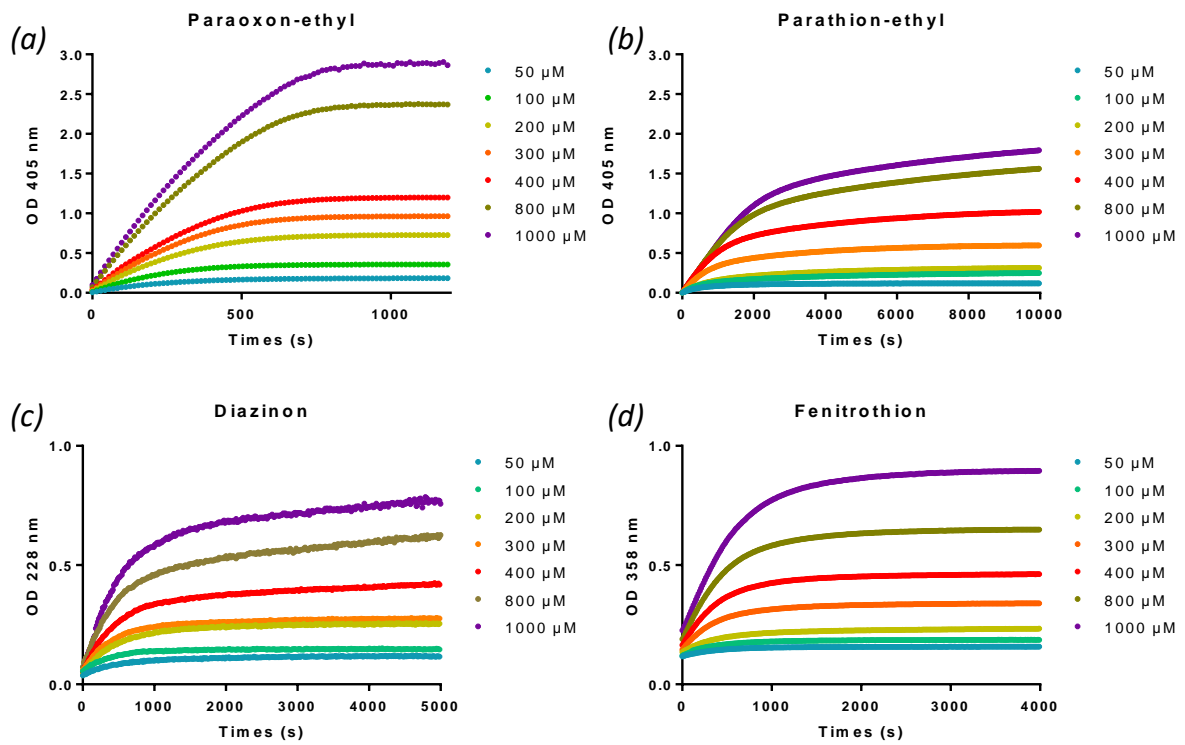
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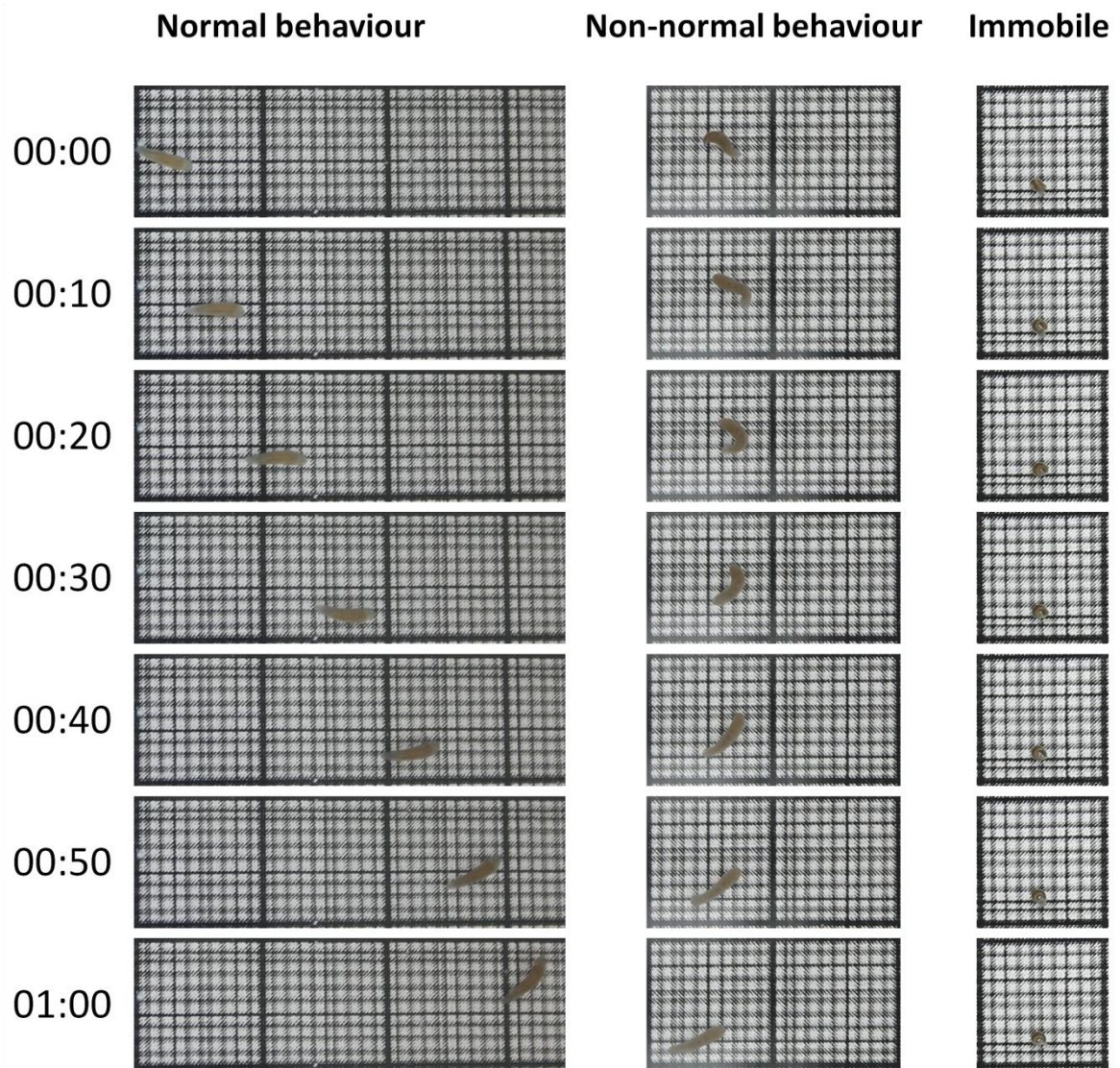
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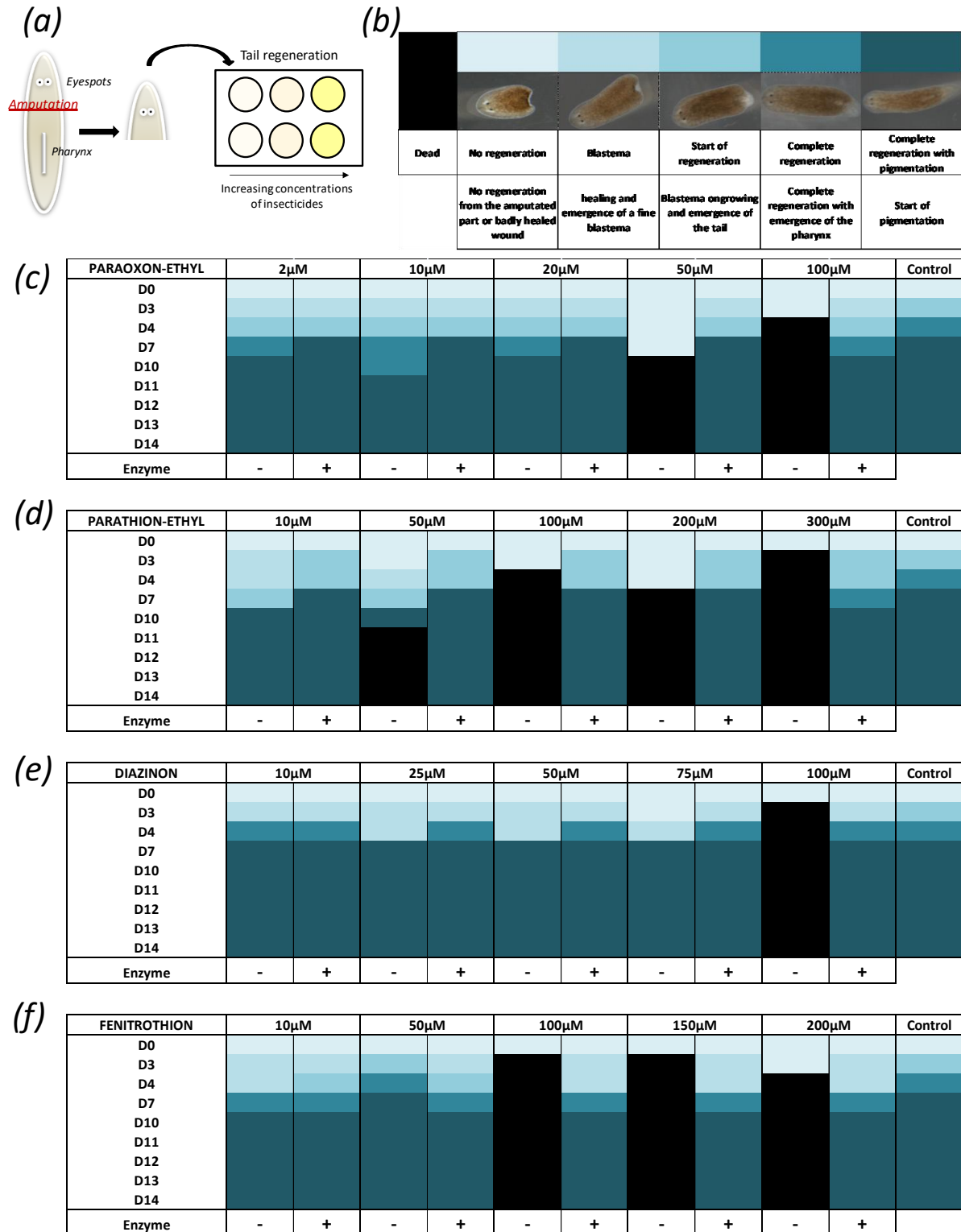
17 **Supplementary figure 1. Enzymatic degradation of insecticides.** Insecticide hydrolysis was followed by
18 measuring absorbance of the product released at 405 nm for paraoxon-ethyl (a) and parathion-ethyl (b), 228 nm
19 for diazinon (c) and 358 nm for fenitrothion (d). Curves represent the mean of three replicates.

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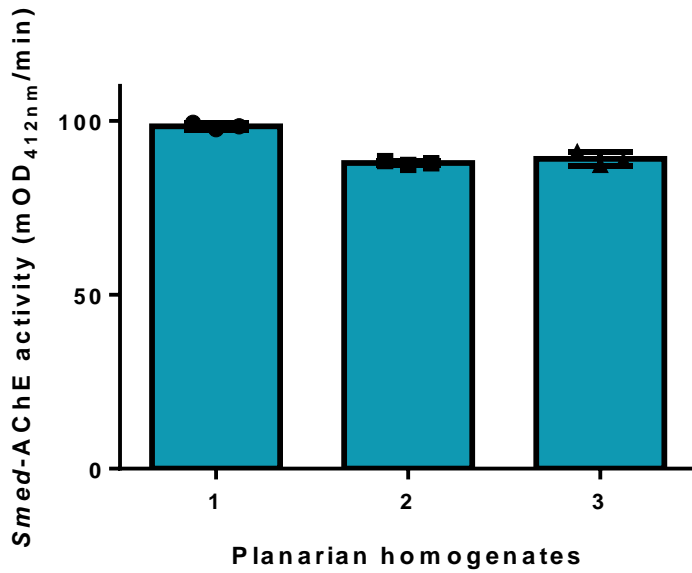
22 **Supplementary figure 2. Defining mobility criteria.** The modifications of planarian mobility by insecticides or
 23 their degradation products were observed and classified in three categories.



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 25 **Supplementary figure 3. Evaluating the impact of insecticides and their enzymatically-generated**
 26 **degradation products on planarian tail regeneration.** Five planarians were cut above the pharynx and
 27 incubated in insecticide solutions (a). The tail regeneration of planarians is presented using a color code from
 28 light to dark blue describing initial to final regeneration stages as presented in figure caption (b). Paraoxon-ethyl
 29 (c), parathion-ethyl (d), diazinon (e), fenitrothion (f) and the related degradation products were evaluated. Dead
 30 planarians are colored black. (+) and (-) describe the solution with and without enzymatic degradation. As

31 pesticides were initially solubilized in ethanol before dilution in water to reach final concentration, the control
32 solutions represent the maximum final ethanol concentration for each insecticide.

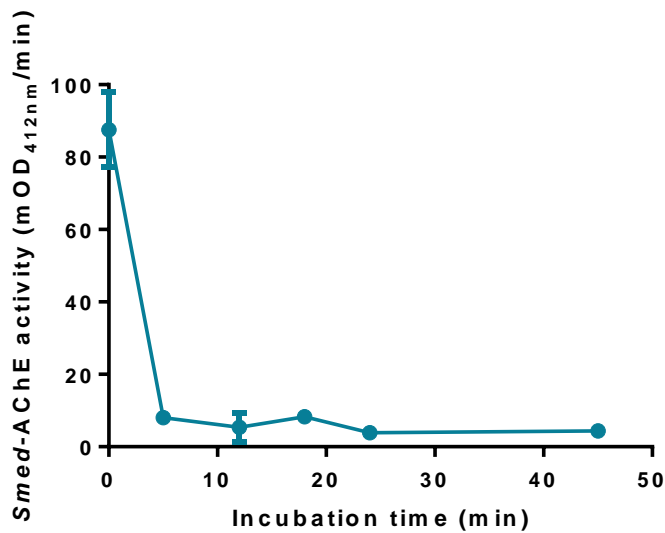
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35 **Supplementary figure 4. Evaluating the reproducibility of planarian homogenate preparation.** The overall
36 AChE activity of planarians homogenates was consistent for three independent preparations.

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39 **Supplementary figure 5. Influence of incubation time on acetylcholinesterase inhibition with 800 μM**
40 **paraoxon-ethyl.**

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45 **Supplementary Table 1. Summary of NOEC values for full and amputated worms incubated in**
46 **insecticides or degradation products**

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| NOEC | Full worm | | Amputated worm | | | |
|-----------------|-----------|---------------------|----------------|---------------------|-----------|---------------------|
| | Pesticide | Degradation product | Head | | Tail | |
| | | | Pesticide | Degradation product | Pesticide | Degradation product |
| Paraoxon-ethyl | 10µM | 50µM | 20µM | ≥100µM | 20µM | ≥100µM |
| Parathion-ethyl | 100µM | 800µM | 10µM | ≥300µM | 10µM | ≥300µM |
| Diazinon | 100µM | 800µM | 75µM | ≥100µM | 75µM | ≥100µM |
| Fenitrothion | 100µM | 400µM | 10µM | ≥200µM | 50µM | ≥200µM |

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