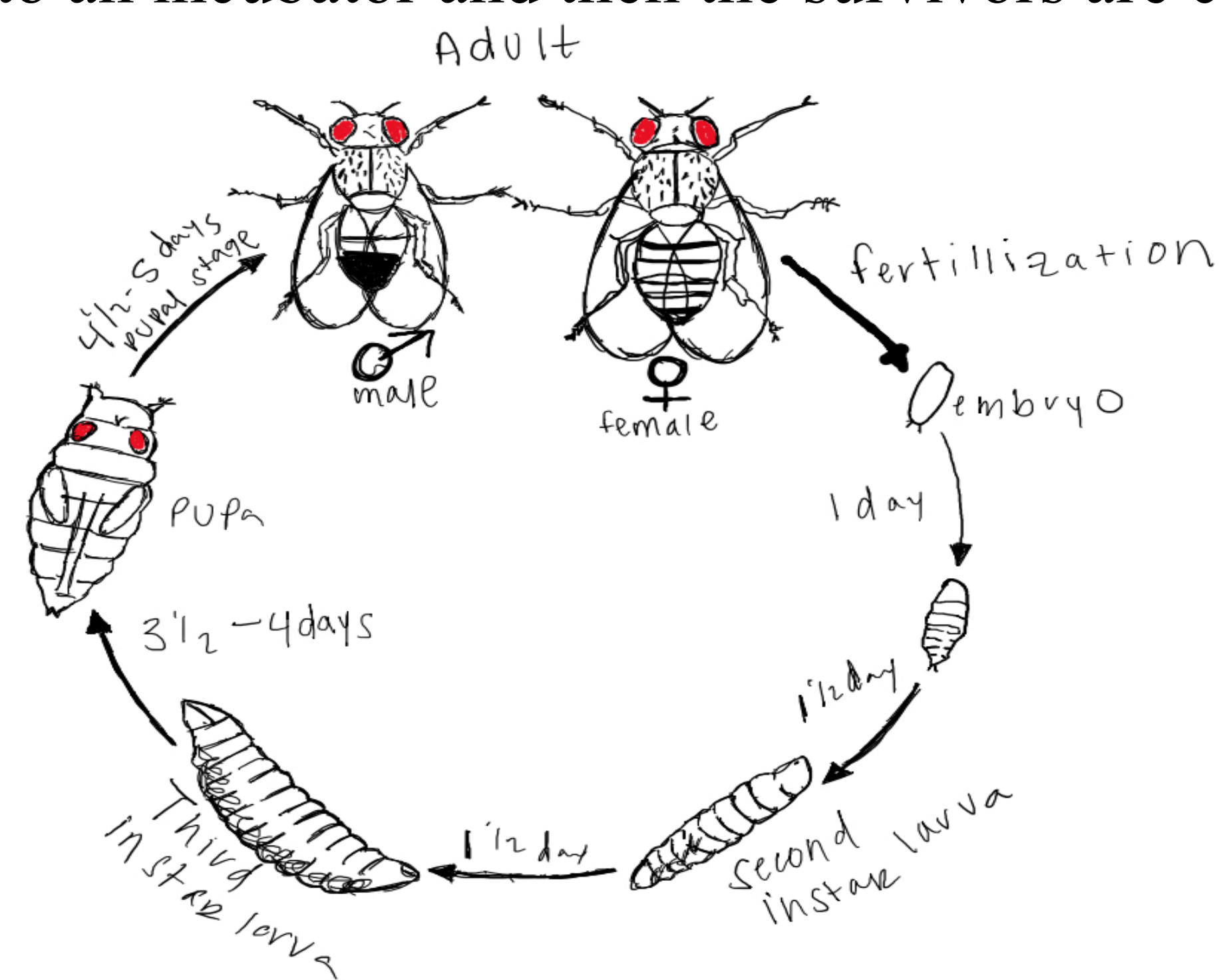


## Introduction

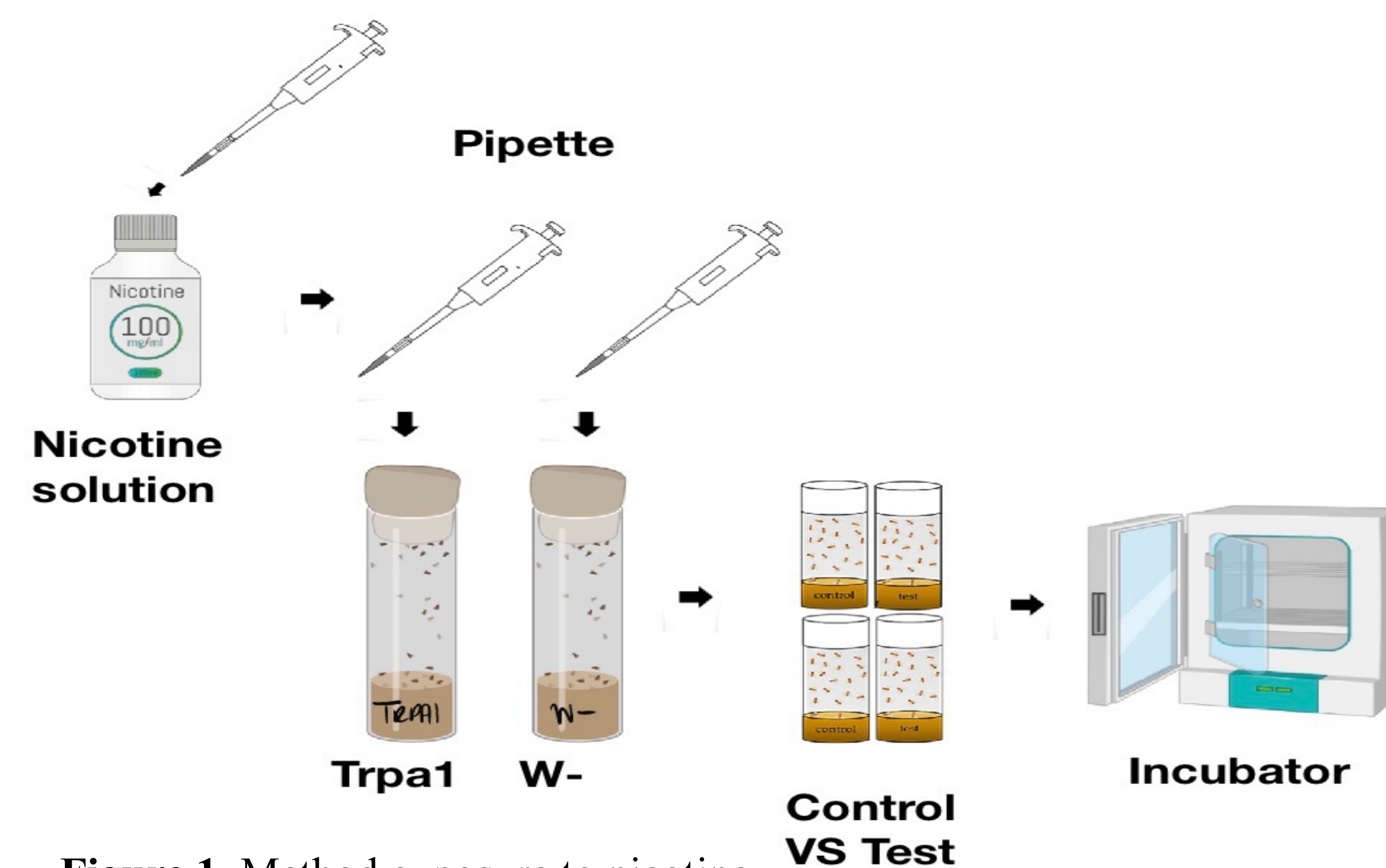
- Nicotine is a plant produced pesticide that is commonly used by humans to keep pests off their agriculture.
- Nicotine has been widely researched on the model organism *Drosophila melanogaster* (Passador-Gurgel et al., 2007).
- In recent study's nicotine was used to increase lifespan and rescues olfactory and motor deficits in *Drosophila* in a Parkinson's model, this can now contribute to the research that nicotine can have positive effects on degenerative diseases.
- This group determined an optimal nicotine concentration and food delivery methods least harmful to white minus (w) wild type flies. This recent study is an example of the potential positive effects of nicotine in general- this could mean that there could be a potential positive effect of nicotine used against locomotive deterioration in TRPA1
- TRPA1 is part of a family of genes responsible for chemical nociception thermotaxis.
- Flies become a great test subject in exposure modeling because their short life spans allow for testing at every life stage and in a short period of time. As stated in (Jedlicka et al., 1997), exposing TRPA1 to nicotine in flies at all life stages will be critical to finding any changing in the development of *Drosophila* and will yield useful results.

## Methods

Using a stock nicotine solution the flies will be exposed to different levels of concentration of nicotine, while on a standard food medium. The concentrations are pipetted into a food mixture then flies are placed into the vial with nicotine and left to survive placed into an incubator and then the survivors are counted, and recorded for data.

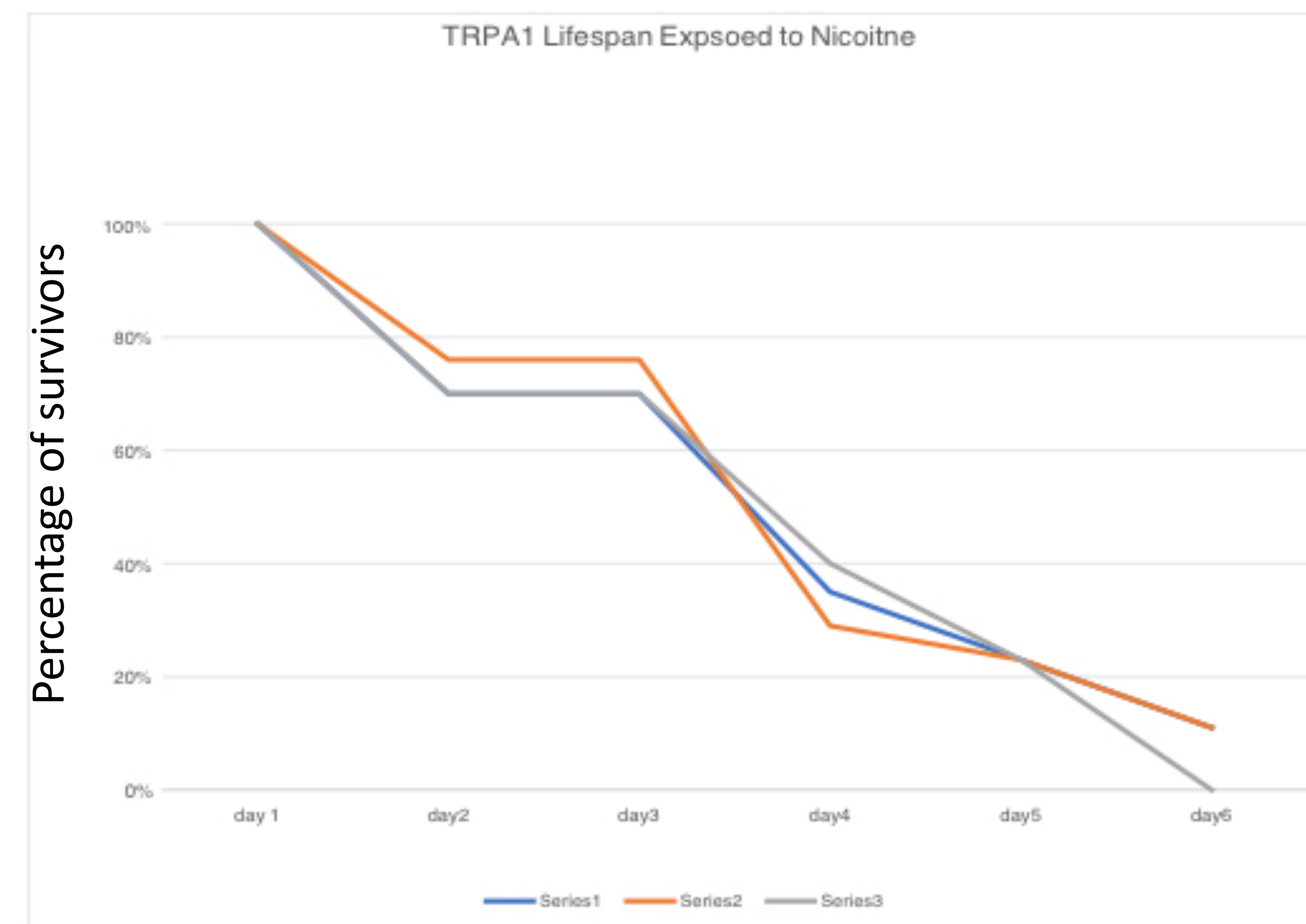


**Figure 2.** Life Span of *Drosophila*. Shows the lifespan of *Drosophila* from adulthood to the different stages of their life (from fertilization to adult hood).

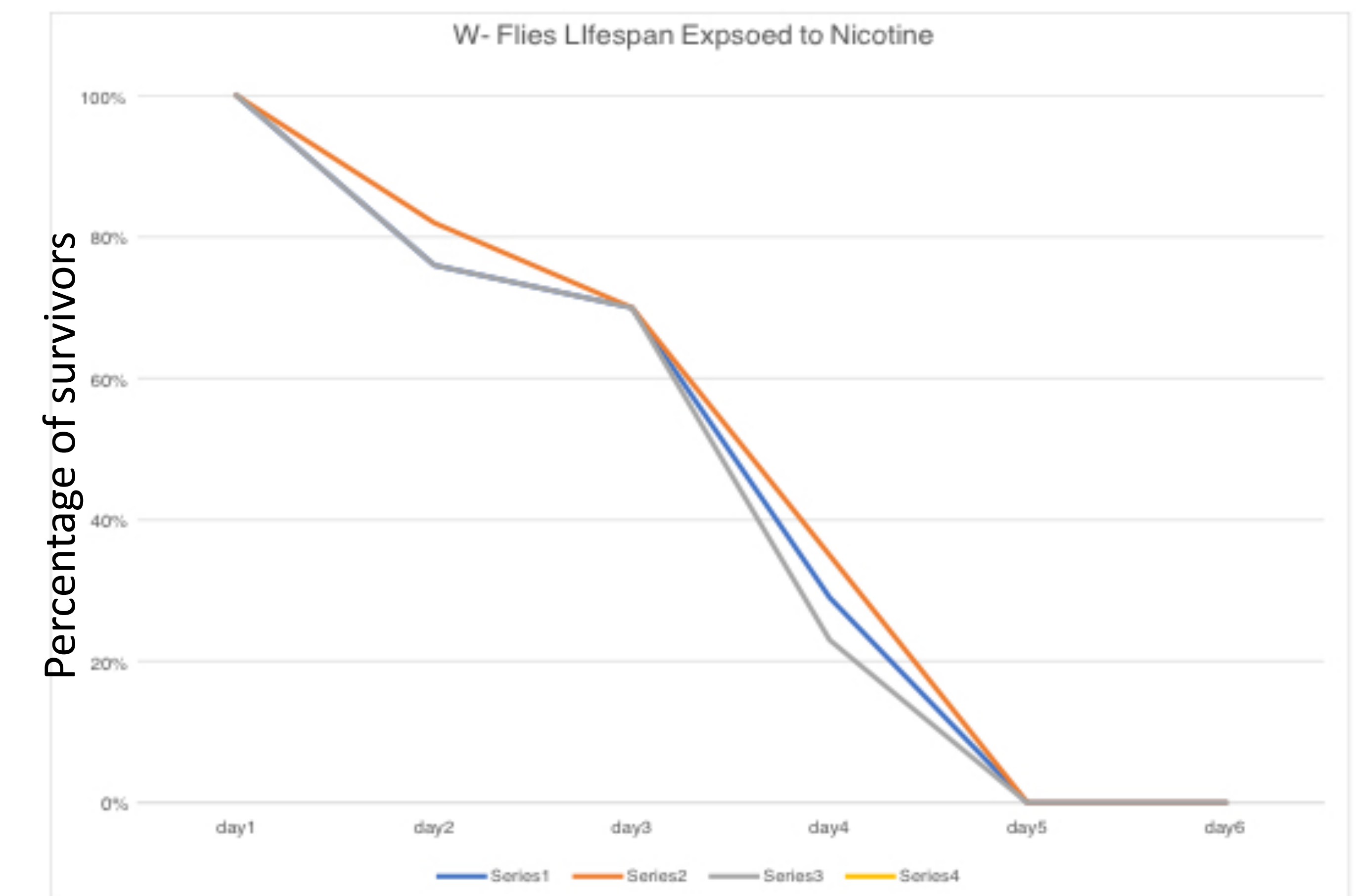


**Figure 1.** Method exposure to nicotine.

## Results



(A)



(B)

**Figure 3.** Life Span of *Drosophila*. Exposed to TRPA1

Graph (A) shows the life span of TRPA1 exposed to Nicotine during a 6 day period.

Graph (B) shows the life span of W- exposed to nicotine during the same 6 day period.

## Discussion

- Nicotine is used a human stimulant, is a common pesticide for plants with ongoing research about nicotine this experiment could provide the potential positive effect nicotine has.
- TRPA1 is responsible for many things: like pain receptors, sensor of environment and protective response such as behavior.
- The experiment above will examine the TRPA1 loss of function flies and white minus flies exposed to nicotine at sublethal doses and then be tested as adults to understand the effect the exposure has on the motor activity of flies.
- The observation conducted is that exposure to nicotine could protect loss of function TRPA1

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