“Read Me” file for data presented in:

**Inherited predation defense strategies in planthopper: Implications for biocontrol and ecosystem evolution**

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**General information**

**1. Title of dataset**

Inherited predation defense strategies in planthopper: Implications for biocontrol and ecosystem evolution

**2. Author information**

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**3. Date of data collection**

Data1: 2019- 1- 7~ 2019-3-25.

Data2: 2019- 5-7~ 2019-5-13.

**4. Geographic location of data collection**

All the data were collected at 33.59466566375176° N, 130.21319896013276°E, 744, Motooka, Nishi Ward, Fukuoka, 819-0395, Japan.

**Data/ file overview**

**1. File List:**

Data1. proportion of macropters and surviving SBPHs

Data2. number of attacks by and time taken for rove beetle to catch a macropter

**Methodological information**

**1. Description of methods used for collection/generation of data:**

Data1:

The data of proportion of macropters and surviving SBPHs (small brown planthoppers) were collected by exposing different instar nymphs of SBPHs to predation risk of rove beetle *Paederus fuscipes*. When these nymphs had developed into adults, we counted the number of macropters, brachypters and total surviving number of SBPHs and calculated the proportion of macropters and surviving SBPHs respectively.

Data2:

The data of number of attacks and time taken were collected by putting threatened or non- threatened macropters to a peri dish with starved predator and counted the number of attacks and time needed for predator to successfully capture threatened or non-threatened macropter.

**2 Methods for processing the data:**

Data1: we calculated the proportion of macropters by formula1:

$$Pro. of female mac.=\left(\frac{no.of female mac.}{no.of female mac.+ no.of female bra.}\right)\%$$

Where “pro. of female mac.”, “no. of female mac.” and “no. of female bra.” is the proportion of female macropters, number of female macropters and number of brachypters respectively.

We calculated the proportion of surviving SBPHs with formula 2:

$$Pro. of female=\left(\frac{no. of female}{no.of female+no.of male}\right)\%$$

Where “pro. of female”, “no. of female” and “no. of male” is the proportion of females, number of females and number of males respectively. We calculated the proportion of males by changing the numerator of formula 2 with “no. of male”.

Data2: number of attacks by and time taken for rove beetle to catch a macropter was raw data that did not take any modification.

**3. Software- specific information needed to interpret the data:**

All data analyses were conducted with R (version 4.0.3).

Data1: Dunnett's test for multiple comparison, package “multcomp”.

Data2: Kaplan- Meier estimates, package “survival” and “survminer”

**4. Experiment conditions:**

Photoperiod: 16:8 (L:D), temperature: 25℃, 60% relative humidity.

**5. Describe any quality-assurance procedures performed on the data:**

Data2: The best model to regressed was: “No. attacks~ risk treatments + sex+ risk treatments: sex” for parent generation, and “No. attacks~ risk treatments” for F1 generation.

The best model of cox proportional hazards model for both parent and F1 generation is: “time taken ~ risk treatments+ Sex”.

There is no any quality-assurance procedure performed on the data1 and data2.

**6. People involved with sample collection, processing, analysis and/or submission:**

Jian Wen: sample collection, processing, analysis and submission.

Takatoshi Ueno: analysis

**Data-specific information for sexual differences in within- and trans-generational plasticity of induced morphological defense in small brown planthoppers**

**1. Number of variables:**

Data1: 2 variables (“initial stages” and “sex” in parent generation, “risk treatments” and “sex” in F1 generation)

Data2: 2 variables (risk treatments, sex)

**2. number of cases/ rows:**

Data1: 80 rows

Data2: 188 rows

**3. Variable list:**

Data1

a. Name: Initial stages

Description: the initial instar of SBPH nymphs for risk exposure

Unit: instar

b. Name: Risk treatments

Description: with and without risk exposure.

Unit: no

c. Name: Sex

Description: female and male SBPHs

Unit: no

Data 2

a. Name: Risk treatments

Description: with and without risk exposure.

Unit: no

b. Name: Sex

Description: female and male SBPHs (small brown planthoppers)

Unit: no

**4. Specialized formats or other abbreviation used:**

Data1:

No. of macropter: number of macropters

No. of brachypter: number of brachypters

Pro. of macropter: proportion of macropters

Pro. of surviving SBPHs: proportion of surviving SBPHs (small brown planthoppers)

Pcontrol: control treatments conducted for parent generation.

Fcontrol: control treatments conducted for F1 generation.

P1-PA: SBPHs nymphs are exposed to predation risk from 1st instar nymph to the beginning of adult.

P2-PA: SBPHs nymphs are exposed to predation risk from 2nd instar nymph to the beginning of adult.

P3-PA: SBPHs nymphs are exposed to predation risk from 3rd instar nymph to the beginning of adult.

P4-PA: SBPHs nymphs are exposed to predation risk from 4th instar nymph to the beginning of adult.

P5-PA: SBPHs nymphs are exposed to predation risk from 5th instar nymph to the beginning of adult.

P1-F1: SBPHs nymphs are exposed to predation risk from parent 1st instar nymph to F1 1st Instar nymph.

Data2:

Time taken: the time needed for *Paederus fuscipes* to capture a threatened or non-threatened macropter.

No. attacks: the number of attacks needed for *Paederus fuscipes* to capture a threatened or non-threatened macropter.

Pcontrol: control treatments conducted for parent generation.

Fcontrol: control treatments conducted for F1 generation.

P3-PA: SBPHs nymphs are exposed to predation risk from 3rd instar nymph to the beginning of adult.

P3-F1: SBPHs nymphs are exposed to predation risk from parent 3rd instar nymph to F1 1st Instar nymph