

SUPPLEMENTARY MATERIAL

Effect of sex, age and morphological traits on tethered flight of *Bactrocera dorsalis* (Hendel) (Diptera: Tephritidae) at constant temperatures

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Table S1. Summary of the generalised linear mixed effects model describing the effects of age, sex and temperature on the number of discrete flight bouts made by tethered *B. dorsalis* on a flight mill. P-values in bold are significant at $\alpha = 0.05$.

| Effect | df | | <i>F</i> | <i>P</i> |
|-------------------|-----------|-------------|----------|------------------|
| | numerator | denominator | | |
| Intercept | 1 | 52.852 | 34.464 | <0.001 |
| Age | 2 | 261.246 | 0.13 | 0.878 |
| Sex | 1 | 160.945 | 1.849 | 0.176 |
| Temperature | 6 | 261.399 | 4.144 | <0.001 |
| Age × Sex | 2 | 261.498 | 0.162 | 0.851 |
| Age × Temperature | 12 | 261.338 | 0.589 | 0.851 |
| Sex × Temperature | 6 | 261.588 | 0.823 | 0.553 |
| Body mass | 1 | 261.022 | 0.891 | 0.346 |

Table S2. Summary of the generalised linear mixed effects model describing the effects of age, sex and temperature on the total distance flown by tethered *B. dorsalis* on a flight mill. P-values in bold are significant at $\alpha = 0.05$.

| Effect | df | | <i>F</i> | <i>P</i> |
|-------------------|-----------|-------------|----------|------------------|
| | numerator | denominator | | |
| Intercept | 1 | 52.252 | 18.727 | <0.001 |
| Age | 2 | 261.498 | 9.581 | <0.001 |
| Sex | 1 | 192.231 | 0.101 | 0.751 |
| Temperature | 6 | 261.627 | 6.455 | <0.001 |
| Age × Sex | 2 | 261.714 | 0.676 | 0.51 |
| Age × Temperature | 12 | 261.578 | 1.612 | 0.088 |
| Sex × Temperature | 6 | 261.78 | 2.101 | 0.053 |
| Body mass | 1 | 261.326 | 5.271 | 0.022 |

Table S3. Summary of the generalised linear mixed effects models describing the effects of age, sex and temperature on flight bout and total flight duration by tethered *B. dorsalis* on a flight mill. P-values in bold are significant at $\alpha = 0.05$.

| Effect | Bout | | | | Total | | | |
|-------------------|-----------|-------------|----------|------------------|-----------|-------------|----------|------------------|
| | df | | <i>F</i> | <i>P</i> | df | | <i>F</i> | <i>P</i> |
| | numerator | denominator | | | numerator | denominator | | |
| Intercept | 1 | 263 | 70.651 | <0.001 | 1 | 7.951 | 286.346 | <0.001 |
| Age | 2 | 263 | 4.593 | 0.011 | 2 | 259.642 | 2.161 | 0.117 |
| Sex | 1 | 263 | 0.582 | 0.446 | 1 | 261.089 | 1.483 | 0.224 |
| Temperature | 6 | 263 | 11.246 | <0.001 | 6 | 259.825 | 5.017 | <0.001 |
| Age × Sex | 2 | 263 | 0.517 | 0.597 | 2 | 260.101 | 0.38 | 0.684 |
| Age × Temperature | 12 | 263 | 1.807 | 0.047 | 12 | 259.803 | 0.626 | 0.819 |
| Sex × Temperature | 6 | 263 | 0.405 | 0.876 | 6 | 259.959 | 0.875 | 0.513 |
| Body mass | 1 | 263 | 1.247 | 0.265 | 1 | 259.402 | 0.001 | 0.973 |

Table S4. Summary of the generalised linear mixed effects models describing the effects of age, sex and temperature on average and maximum flight speed by tethered *B. dorsalis* on a flight mill. P-values in bold are significant at $\alpha = 0.05$.

| Effect | Average flight speed | | | | Maximum flight speed | | | |
|-------------------|----------------------|-------------|----------|----------|----------------------|-------------|----------|--------------|
| | df | | <i>F</i> | <i>P</i> | df | | <i>F</i> | <i>P</i> |
| | numerator | denominator | | | numerator | denominator | | |
| Intercept | 1 | 73.282 | 28.514 | <0.001 | 1 | 4.963 | 8.98 | 0.03 |
| Age | 2 | 261.615 | 2.265 | 0.106 | 2 | 260.75 | 0.913 | 0.403 |
| Sex | 1 | 147.822 | 0.041 | 0.841 | 1 | 262.227 | 1.368 | 0.243 |
| Temperature | 6 | 261.737 | 1.545 | 0.164 | 6 | 260.863 | 2.429 | 0.027 |
| Age × Sex | 2 | 261.813 | 1.223 | 0.296 | 2 | 261.238 | 3.074 | 0.048 |
| Age × Temperature | 12 | 261.684 | 0.709 | 0.742 | 12 | 260.888 | 1.16 | 0.312 |
| Sex × Temperature | 6 | 261.894 | 1.074 | 0.378 | 6 | 260.933 | 1.094 | 0.366 |
| Body mass | 1 | 261.411 | 2.551 | 0.111 | 1 | 260.514 | 0.008 | 0.93 |