

Cox Regression Model Specification

The formula below gives the specification for the full dual-species Cox regression model. Model coefficients represent mean values over 500 simulated data sets.

$$\text{Prob}\{T \geq t \mid \text{article}_i d = i\} = S_i(t) e^{X\beta}, \quad \text{where}$$

$$\begin{aligned} X\hat{\beta} = & 3.418483 \\ & - 0.07404618 \text{ temperature} - 0.0001210023(\text{temperature} - 10.76)_+^3 \\ & + 0.009569496 (\text{temperature} - 25)_+^3 \\ & - 0.01189255 (\text{temperature} - 27.2)_+^3 \\ & + 0.002444053 (\text{temperature} - 35)_+^3 + 1.388051[\text{albopictus}] \\ & + 2.231304 \text{ SVPD} - 1.301778 (\text{SVPD} - 0.127279)_+^3 \\ & + 2.670574 (\text{SVPD} - 0.633498)_+^3 \\ & - 1.368082 (\text{SVPD} - 1.11352)_+^3 \\ & - 0.0007133561 (\text{SVPD} - 3.823)_+^3 \\ & - 1.796275 \text{ water} - 3.186897 \text{ sugar} - 2.0946 \text{ blood} \\ & + [\text{albopictus}][- 0.105522 \text{ temperature} + 0.0006491691(\text{temperature} - 10.76)_+^3 \\ & - 0.01416306 (\text{temperature} - 25)_+^3 \\ & + 0.01614036 (\text{temperature} - 27.2)_+^3 \\ & - 0.002626462(\text{temperature} - 35)_+^3] \\ & + [\text{albopictus}][1.148352 \text{ SVPD} \\ & - 1.589431 (\text{SVPD} - 0.127279)_+^3 \\ & + 3.67276 (\text{SVPD} - 0.633498)_+^3 \\ & - 2.155463 (\text{SVPD} - 1.11352)_+^3 \\ & + 0.07213333 (\text{SVPD} - 3.823)_+^3] \\ & + 2.190672 \text{ sugar} \times \text{blood} \end{aligned}$$

and $[c] = 1$ if subject is in group c , 0 otherwise; $(x)_+ = x$ if $x > 0$, 0 otherwise.

temperature: Temperature ($^{\circ}\text{C}$)

SVPD: Saturation vapor pressure deficit (kPa)

albopictus: Indicator for species (*Aedes albopictus* = 1)

water: Indicator for water provision (water provided = 1)

sugar: Indicator for sugar provision (sugar provided = 1)

blood: Indicator for blood provision (blood provided = 1)