

研究论文

食虫沟瘤蛛的饥饿耐受性

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摘要 对我国多数稻区共享的优势种蜘蛛食虫沟瘤蛛进行饥饿耐受性测定, 结果显示食虫沟瘤蛛的耐饥时间以及组内个体耐饥力的变异幅度与温度高低呈负相关。在35、25℃和15℃ 3种试验温度下, 食虫沟瘤蛛的耐饥时间及变异幅度均与龄期呈正相关; 在5℃时, 耐饥时间极大延长, 组内变异系幅度亦急剧增大, 但此时耐饥时间和变异幅度均与龄期呈负相关。在高温35℃和低温5℃下, 3个龄期组的耐饥时间差异不显著 ($p>0.05$); 但在适宜温度25℃和15℃时, 3个龄期组之间的耐饥时间差异显著 ($p<0.05$)。同一龄期组的食虫沟瘤蛛在任意两种不同的温度条件下, 其耐饥时间的差异性均达到极显著水平 ($p<0.01$)。4种试验温度条件下, 处于饥饿状态的食虫沟瘤蛛各龄期组的阶段死亡率均具有正态分布特点, 可用正态分布模型 $M=[SX(1)]\sigma[KF(12\pi[KF])][SX)]\bullet e-[SX(X)(T-\mu)^2][2\sigma^2[SX]]$ 进行拟合; 并可根据正态分布的特点得出食虫沟瘤蛛的饥饿半致死时间 (T_{50}) 和致死时间 (T_{95})。

关键词 [食虫沟瘤蛛](#); [饥饿耐受性](#); [温度](#); [龄期](#)

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The starvation endurance of *Ummeliata insecticeps*

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Abstract The paddy spider is one of the primary predators of rice pests—accounting for around 51.2% to 89.5% of the total kinds of predators in paddy fields. The paddy ecosystem is complex and unstable because of climate variation and the activities of living organisms and human beings. The paddy spiders must endure starvation periods because the populations of their prey are occasionally reduced in a large amount by the cold climate in winter or by farming activities like spraying chemicals, gathering, plowing and so on. Studying the starvation endurance of the paddy spider can provide more detailed and precise parameters for protecting and utilizing them. This paper focuses primarily on the starvation endurance of *Ummeliata insecticeps* (Boesenberg et Strand), which is common in most rice-planting areas in China. The results show that the survival time of *U. insecticeps* and the variation among individuals are positively related with the spider's instar age at 35, 25℃ and 15℃, but negatively related at 5℃. In addition, both the survival time and the variation among individuals of all test groups increased greatly at 5℃. Whereas the differences of survival time among the three instar-groups are insignificant ($p>0.05$) at 35℃ and 5℃, the survival times of the three instar-groups are significantly different ($p<0.05$) at the favorable temperatures of 25℃ and 15℃. Temperature influences the spider's starvation endurance greatly. The survival time of a certain instar-group that lived in one kind of temperature is greatly different from that of the same instar-group at any other kind of temperature ($p<0.01$). There is a close relation

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ship between the stage-mortality (M) and the survival time (T) of U. insecticeps in starvation. It can be fitted with a normal distribution model: $M = \frac{1}{\sigma \sqrt{2\pi}} e^{-\frac{(T-\mu)^2}{2\sigma^2}}$. The starvation endurance thresholds and lethal times of different U. insecticeps instar-groups can be calculated according to the equation of the normal distribution model.

Key words Ummeliata insecticeps starvation endurance temperature instar

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