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研究论文

球孢白僵菌和金龟子绿僵菌不同菌株对黑足角胸叶甲成虫的致病力评价

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Pathogenicity evaluation of the entomopathogenic fungi *Beauveria bassiana* and Metarhizium anisopliae against adults of *Basilepta melanopus* (Coleoptera: Eumolpidae)

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摘要 本研究在测定不同球孢白僵菌*Beauveria bassiana*和金龟子绿僵菌*Metarhizium anisopliae*菌株的生长速率与产孢量的基础上， 采用孢悬液浸渍法进行了对油茶新害虫——黑足角胸叶甲*Basilepta melanopus*成虫的生物测定， 旨在筛选出感染该成虫的高致病力菌株， 为防治该虫提供新的生物资源。结果表明： 不同菌株生长速率和产孢量间存在显著差异， MaYTTR-04，BbFZ-17， MaZPTR-01和BbTK-01生长速率和产孢量均显著高于其他菌株。接种后， 叶甲成虫累积死亡率随时间的增加而逐渐增高， 接种白僵菌7 d后， 成虫校正死亡率全部达到100%； 接种MaZPTR-01和MaYTTR-04两个绿僵菌菌株14 d后， 成虫死亡率分别为80.3%和78.8%。而且接种白僵菌后， 叶甲成虫的僵虫率显著较绿僵菌高， 尤其以BbTK-01和BbFZ-17两个菌株较好， 分别达到85.7%和75.8%。BbXJ-01， BbFZ-17和BbTK-01 3个白僵菌菌株的LT_{50}最小， 分别为3.0， 3.3和3.4 d；MaYTTR-04和MaZPTR-01两个绿僵菌的LT_{50}分别为6.0和6.2 d。结果说明， 白僵菌对叶甲成虫的致病力较强， 尤其是BbTK-01和BbFZ-17两个菌株， 不仅致死率高， 且致死速度快， 僵虫率高， 同时这2个菌株生长速度快、 产孢量大， 具有优良的生产特性， 在黑足角胸叶甲的生物防治中将有重要的应用价值。

关键词： 球孢白僵菌 金龟子绿僵菌 生物学特性 黑足角胸叶甲 致死中时（LT_{50}） 僵虫率

Abstract： In order to screen entomopathogenic fungi strains with high virulence against the new pest *Basilepta melanopus* on *Camellia oleifera*, the growth rate and sporulation of different *Beauveria bassiana* and *Metarhizium anisopliae* strains were investigated, and bioassay evaluation of *B. bassiana* and M. anisopliae against B. melanopus adults was carried out through dipping in spore suspension. The results showed that the growth rate and sporulation of different fungi strains were significantly different. The four strains, *i.e.*, MaYTTR-04, BbFZ-17, MaZPTR-01 and BbTK-01, had higher growth rate and sporulation than other strains. The cumulative mortality of *B. melanopus* adults was gradually increased with time after inoculation with *B. bassiana* and *M. anisopliae*. The cumulative mortality of *B. melanopus* adults reached 100% at 7 d after inoculation with *B. bassiana*, while the mortality of adults at 14 d after inoculation with MaZPTR-01 and MaYTTR-04 were 80.3% and 78.8%, respectively. The cadaver rate of adults inoculated with *B. bassiana* was significantly higher than that inoculated with *M. anisopliae*. The cadaver rates of BbTK-01 and BbFZ-17 were highest, being 85.7% and 75.8%, respectively. The median lethal time (LT_{50}) values *of B. bassiana strains BbXJ-01, BbFZ-17 and BbTK-01 were shortest, being 3.0, 3.3 and 3.4 d, respectively. However, the* LT_{50} *values of the two* M. anisopliae strains, MaZPTR-01 and MaYTTR-04, were 6.0 d and 6.2 d, respectively. The results of bioassay showed that *B. bassiana* strains had higher virulence to *B. melanopus* adults than *M. anisopliae*, especially the two strains, BbTK-01 and BbFZ-17, had higher lethality and infection rate than other strains, and at the same time, they had the characteristics of rapid growth and high sporulation, suggesting that the two strains have great potential in biocontrol of *B. melanopus* adults.

Key words： *Beauveria bassiana*; *Metarhizium anisopliae* biological characteristics; *Basilepta melanopus* median lethal time (LT_{50}) cadaver rate

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