Available online at www.scholarsresearchlibrary.com

Scholars Research Library

Annals of Experimental Biology, 2022, 10 (3): 54-55
(http://www.scholarsresearchlibrary.com)

ISSN:2348-1935

Beauveria Species: Interspecific Dissemination of dsRNA Mycoviruses in Entomogenous Fungus

Ava Thomas*

Editorial office, Annals of Experimental Biology, Uxbridge, United Kingdom

***Corresponding Author:** Dr. Ava Thomas, Editorial office, Annals of Experimental Biology, Uxbridge, United*

E-mail: info@scholarsresearchlibrary

***Received:** 10-May-2022, Manuscript no. AEB-22- 81457; **Editor assigned:** 12-May-2022, Pre QC no. AEB-22- 81457 (PQ); **Reviewed:** 16-May-2022, QC no AEB-22- 81457 (Q); **Revised:** 20-May-2022, Manuscript no. AEB-22- 81457 (R); **Published:** 26-May-2022*

ABSTRACT

In plant pathogenic fungi, as well as in entomogenous fungi, particularly Beauveria bassiana, mycoviruses can spread intraspecifically and interspecifically. Uncertainty exists regarding the prevalence of mycoviruses in Beauveria spp. and their capacity to transfer interspecifically between Beauveria species. In this study, B. bassiana was excluded from the four Beauveria species that were chosen at random for double-stranded RNA (dsRNA) detection. Additionally, employing hyphal anastomosis and a unique insect coinfection transmission technique, the interspecific transmission between B. bassiana, B. amorpha, and B. aranearum was studied using two previously described dsRNA mycoviruses from B. bassiana. According to the findings, dsRNA mycoviruses can transfer interspecifically across various Beauveria species and are present in all Beauveria species. Compared to reverse transmission, B. bassiana's transmission efficiency to the other two Beauveria species was noticeably higher. In B. amorpha and B. aranearum, both viruses were capable of vertical and stable dissemination, which had an impact on the growth rate and colony morphology.

Keywords: Mycoviruses, Beauveria

INTRODUCTION

Mycoviruses can infect fungus specifically. The majority of mycoviruses are not contagious when detached from the host cell, but some of them can infect the host in vitro and alter the pathogenicity, virulence, and biological characteristics of the host fungus. These biological characteristics include pigment reduction, mycelium deformity, decreased production of asexual spores, decreased radial growth, and decreased fecundity. Mycoviruses have received more attention in recent years due to their capacity to decrease the pathogenicity of phytopathogenic fungi, and they have been suggested as potential biocontrol agents for plant diseases.

By using confrontation cultures of various strains of the same species on a medium, mycoviruses can spread horizontally and intraspecifically by hyphal anastomosis between fungal strains. In these cultures, the virus is transferred from the virus-carrying strain to the virus-free strain through mycelial contact. Additionally, spores may be used to transfer the virus vertically to the following generation. Later research revealed that mycovirus might spread intraspecifically using insects as the vector. According to certain research, mycoviruses may transfer between different species of plant pathogenic fungi and macrofungi and may have an impact on the biological makeup of the host fungus. To better understand the frequency of mycoviruses in entomogenous fungal populations and the functions they perform in their hosts, it is important to know whether mycoviruses could transmit among various species of the same entomogenous fungal genus.

By extracting dsRNA from *Beauveria brongniartii*, *B. aranearum, B. amorpha*, and *B. velata*, it was demonstrated that the dsRNA mycovirus was present in all entomogenous fungus *Beauveria spp.* The first instance of mycovirus horizontal interspecific transmission by IC between different *Beauveria species* was noted. The HA and IC techniques demonstrated that dsRNA mycoviruses could move across distinct *Beauveria species* both intraspecifically and interspecifically. Given the higher transmission

effectiveness from *B. bassiana* to *B. aranearum* and *B. amorpha* compared to that of reverse transmission, it is possible that the two mycoviruses were transmitted from *B. bassiana* to the other Beauveria species. Our findings further demonstrated that intraspecific and vertical transmission of dsRNA mycoviruses between isolates of the same *Beauveria species* as well as effects of mycovirus infection on growth rate and colony formation were both possible.