The Temperature-Dependent Inhibition of Pseudogymnoascus pannorum by Pseudomonas protegens

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The purpose of the research was to determine if temperature had a significant effect on the zone of inhibition produced by the bacteria Pseudomonas protegens against the fungus Pseudogymnoascus pannorum. P. pannorum is closely related to the causal agent of White-Nose Syndrome, which is responsible for mass mortalities in North American bat populations. A biological treatment would mitigate the environmental risks associated with widespread chemical use. Plates were prepared by aseptically pouring 1 mL of fungal conidia solution onto agar and then inoculating three evenly-spaced points with bacteria. Eight assay plates were incubated at 7, 13, 19, and 25°C each, and zones of inhibition were measured in millimeters after six days. A single-factor ANOVA test on the data resulted in a p-value of 7.1E-25 when compared to an alpha value of .05. A post-hoc Tukey test then returned a Dmin value of 2.5, which was lower than all group mean differences and indicated significance among all groups. The research hypothesis that if Pseudomonas protegens is inoculated on lawns of Pseudogymnoascus pannorum conidia and cultured at temperatures of 7, 13, 19, and 25°C, then the zone of inhibition created by Pseudomonas protegens will increase as temperature increases was supported by the data. In conclusion, temperature had a significant effect on the zone of inhibition produced by Pseudomonas protegens.

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