Assessment of Soybean Cyst Nematode Control Using Oyster Mushroom (*Pleurotus* spp.) Mycelium

ABSTRACT

Introduction:

Soybean cyst nematode (SCN), scientifically known as *Heterodera glycines*, is a microscopic, parasitic roundworm that poses a significant threat to soybean (Glycine max) crops worldwide. SCN is one of the most economically damaging plant pathogens affecting soybean production, and other legume crops.

Purpose:

Controlling soybean cyst nematodes through biological means is a crucial aspect of integrated pest management.

Methods:

A recent study has reported that the hyphae (filamentous structures) of the oyster mushroom (*Pleurotus ostreatus*) can rapidly paralyze 17 different nematodes species (including *Caenorhabditis elegans*) within a few minutes of contact. The oyster mushroom and related species employ a highly conserved predatory mechanism to paralyze and kill nematodes. This mechanism involves targeting the cilia of nematode sensory neurons, resulting in rapid paralysis, muscle hypercontraction, and nervous system necrosis, offering a novel approach for controlling parasitic nematodes in various organisms. No previous report is available on the effects of this mushroom on SCN. Hence, we investigated how oyster mushroom mycelium affects the juveniles of the Soybean Cyst nematodes in this experiment and measure its application as a new defensive measure against SCN damage to soybean. Juvenile Soybean Cyst nematodes were prepared by inoculating sensitive soybean plants in the greenhouse and were exposed to the mycelium in the petri plate.

Result

Nematode movement was recorded under microscope for 30 minutes. We used *C. elegans* juveniles as positive control in this experiment as well. Even though the mycelium treated *C. elegans* were paralyzed under 2 minutes, no paralyzing activity was observed in SCN suggesting that SCN is resistant to *Pleurotus ostreatus.*

KeyWords: **Soybean Cyst Nematode, Oyster Mushroom, Mycelium, paralyze**