Opinion Article

iMedPub Journals
www.imedpub.com

American Journal of Phytomedicine and Clinical Therapeutics
ISSN 2321-2748

2024
Vol.12 No.02:286

# Impact of Differential Accumulation of Azoxystrobin and Pyraclostrobin in Rice Seedling Leaves on Phytotoxicity

**Liu Miao***

Department of Agriculture, Shandong Agricultural University, Shandong, China

**Corresponding author:** Liu Miao, Department of Agriculture, Shandong Agricultural University, Shandong, China, E-mail: liu.miao@gmail.com

**Received date:** July 16, 2024, Manuscript No. IPAPCT-24-19574; **Editor assigned date:** July 19, 2024, PreQC No. IPAPCT-24-19574 (PQ); **Reviewed date:** August 02, 2024, QC No. IPAPCT-24-19574; **Revised date:** August 09, 2024, Manuscript No. IPAPCT-24-19574 (R); **Published date:** August 16, 2024, DOI: 10.36648/2321-2748.12.02.286

**Citation:** Miao L (2024) Impact of Differential Accumulation of Azoxystrobin and Pyraclostrobin in Rice Seedling Leaves on Phytotoxicity. Am J Phytomed Clin Ther Vol. 12 No.02: 286.

## Description:

Pyraclostrobin and azoxystrobin are notable for their ability to highly target the rice blast however, their toxic levels toward non-target aquatic organisms vary. The harmful selectivity and component of non-target plants, explicitly rice, stay questionable. Pyr and Azo's potential phytotoxic effects on rice seedlings, including changes in plant morphology, growth and physiological and biochemical changes, were the focus of this study. Both Pyr and Azo were found to have toxic effects on rice, inhibiting growth and causing chlorosis symptoms.

### Phytotoxicity insights revealed

When Azo was applied at the recommended field dose, it was found to be more harmful. The levels of Reactive Energy Complex (REC) that have been demonstrated could be significantly altered by disruption of oxidative stress, resulting in a decrease in photosynthetic pigments and possibly cell death. At 400, 800, 1600 and 4000 mg/L treatments, Azo's toxic effect on rice leaves was also greater than that of Pyr. However, Azo had a lower in vitro cytotoxicity than Pyr on rice leaves. As a result, it is possible to infer that the Azo phytotoxicity mechanism is directly linked to the compound's increased accumulation on leaf tips and edges. Additionally, the positive effects on plant morphology and growth parameters suggest that the mixed application of plant growth regulators. Agrochemicals have been used to increase crop yields and agricultural productivity. Non-target crops may experience tissue damage, stunted growth, altered plant morphology, decreased yield and a variety of abnormal physiological changes as a result of improper pesticide application. The main categories of pesticide classification say that herbicides, which are typically used to control weeds, have a lower selectivity and as a result, are more likely to harm crops and plants.

### Fungicide toxicity comparison

Even though fungicides, insecticides and nematicides are made to kill organisms other than plants, using them incorrectly can still harm crops to varying degrees. Fungicides were found to be more susceptible to phytotoxicity than insecticides. Quinone outside Inhibitors (QoIs) as the most noteworthy selling fungicides that are are generally used to forestall and battle plant microbes, including *Ascomycetes*, *Basidiomycetes*, *Deuteromycetes* and *Oomycetes*. The action mechanism of QoIs is to prevent the production of ATP in the mitochondria of fungi. The total amount of azoxystrobin (Azo) and pyraclostrobin (Pyr), the two types of QoIs that are utilized the most frequently, was approximately 2.5 million pounds in the united states, as stated by the United States Geological Survey (USGS) (USGS,). Pyr and Azo are registered for use in the treatment of the rice blast fungus. While serving as the intended target, Pyr and Azo were toxic to non-target organisms. Pyr and Azo had LC50 values ranging from 0.06 to 2.5 mg/L and 2.5-10 mg/L, respectively, for various aquatic organisms like zebrafish, tadpole, loach, Australian crayfish, clam and Ampullaria gigas. According to these findings, Azo has a higher selectivity for aquatic organisms and Pyr has a higher toxicity. Nonetheless, under field suggested portion shower treatment, Azo unfavorably affected plants, for example, the youthful leaves of lotus seed, melon, corn, wheat, ginger, apple, soybean seedlings, rice cultivating, and *Phaeodactylum tricornutum*. Found that Azo had a greater impact on the physiological health of melons than Pyr did. However, more research is needed to determine the extent to which rice is selective for safety and the underlying selective mechanisms of Pyr and Azo. Both sodium nitrophenolate aqueous solution and diethyl aminoethyl hexanoate are well-known Plant Growth Regulators (PGRs) that play a variety of roles in plant growth and development as well as stress resistance two PGRs were extensively used in the production of several crops, including corn, soybean, ginger, cotton, tomato, cabbage, pickled vegetables and ginge. However, little is known about the roles that DA-6 and SN play in how rice responds to QoIs stress. As a result, we carried out a comprehensive investigation that included Azo and Pyr's various morphological, biochemical and physiological characteristics. To protect plants from toxicity, we also looked at how DA-6 and SN affected plant growth and the emergence of phytotoxic symptoms. Our findings shed light on the role that DA-6 and SN play in reducing Pyr and Azo's toxicity to rice seedlings and provide compelling evidence regarding the selectivity of rice in terms of safety. The study will provide valuable insights into the agrochemicals' phytotoxic mechanism and a potential strategy for reducing rice phytotoxicity.