

Form B-2
(FY2022)
Must be typed

Date (日付)
29/09/2022 (Date/Month/Year: 日/月/年)

Activity Report -Science Dialogue Program-
(サイエンス・ダイアログ事業 実施報告書)

- Fellow's name (講師氏名): SHAHI SABITREE (ID No. P21093)

- Name and title of the lecture assistant (講義補助者の職・氏名)

- Participating school (学校名): Sanyo Gakuean High School

- Date (実施日時) 22/09/2022 (Date/Month/Year: 日/月/年)

- Lecture title (講義題目):

Environmentally friendly alternative for plant protection against phytopathogenic fungi

- Lecture format (講義形式):

◆ Onsite ・ Online (Please choose one.)(対面 ・ オンライン(どちらか選択ください。))

◆ Lecture time (講義時間) 30 min (分), Q&A time (質疑応答時間) 15 min (分)

◆ Lecture style (ex.: used projector, conducted experiments)

(講義方法 (例: プロジェクター使用による講義、実験・実習の有無など))

Powerpoint presentation using a projector

- Lecture summary (講義概要): Please summarize your lecture within 200-500 words.

Phytopathogenic fungi are known to be the gravest threat to plant life as they are responsible for about 70-80% of crop diseases. These pathogenic fungi are among the most destructive plant pathogen associated with significant economic losses. The most commonly practiced approaches to manage these fungal diseases include the application of chemical fungicides and crop rotation, a cultural method. However, these techniques come with a number of drawbacks. The use of chemical fungicides can cause adverse effects on soil fertility and soil microorganism including nitrogen-fixing bacteria and algae. Excess use of fungicides is also associated with environmental pollution, non-target effects and food consumer concerns. Moreover, persistence and prolonged use of fungicides may lead to the development of fungicide-resistant fungal strains. On the other side, implementation of crop rotation is costly and requires the expert's knowledge. Thus, an environmentally friendly alternative strategy is required for sustainable disease management.

Some mycoviruses (viruses that infect fungi) have a deleterious influence on plant pathogenic fungi. These viruses have the ability to attenuate the virulence of the host fungus upon infection. Thus, these viruses could offer environmentally-friendly alternatives to harmful fungicides for plant

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protection. Therefore, our research is centered on identifying viruses that are capable of reducing the virulence of their host fungus. We also study the intricate relationships between mycovirus and host with an idea that this information would help us manipulate these viruses as potential biocontrol agents for fungal disease management.

On the day of the presentation, Inoue sensei opened the class with a brief speech in Japanese about me and the purpose of my visit to the school. Following that, I then began my lecture in English. I divided my presentation into three sections. The first part of the presentation included a quick introduction of myself, my country, my hometown, my educational background and my research journey. Second, I introduce them to microbes including their types and their impact, both positive and negative, on living organisms. I explained to them about plant pathogenic fungi, various devastating fungal diseases and commonly used disease management techniques. Thereafter, I talked about mycoviruses and their potential application as biocontrol agents in the management of plant fungal infections. Next, I gave them a brief overview of the several mycovirus studies that are currently being conducted in our lab. Finally, in response to the high school's request, I briefly discussed solid waste management in my hometown during the final session of my presentation.

◆Other noteworthy information (その他特筆すべき事項):

- N/A

- Impressions and comments from the lecture assistant (講義補助者の方から、本事業に対する意見・感想等がありましたら、お願いいたします。):

- N/A