

様式 A-1
(FY2023)

令和5年 12月 26日

サイエンス・ダイアログ 実施報告書

1. 学校名・実施責任者氏名: 千葉県立佐倉高等学校 ・ 浅野 裕史
2. 講師氏名: Dr. Yuniar Devi Utami (Mr.)
3. 講義補助者氏名: 椎名 昭斗
4. 実施日時: 令和6年 1月 18日 (木) 16:00~17:30
5. 参加生徒: 1年生 4人、 2年生 8人、 3年生 0人 (合計 12人)
備考: 理数科の生徒 10人
6. 講義題目: アブラナ科植物内生細菌によるリン栄養依存的な病原性発現機構の解明
The tripartite interaction of Arabidopsis thaliana, Pseudomonas aeruginosa, and Colletotrichum tofieldiae is governed by nutrient condition
7. 講義概要:

In natural conditions, plants live under changing environmental conditions. Some plants may live in the soil with abundant nutrients while some live in nutrient-poor conditions. They also live together with diverse microorganisms in this wilderness. The microorganisms, such as bacteria (細菌) and fungi (カビ), are also living in the soil and interact with the plants. Plants that live in nutrient-poor soil can make a relationship with beneficial microorganisms to help them access nutrients from distant areas. However, not all microorganisms are good friends for plants. Some microorganisms can be parasites that make plants sick. I am interested in how microorganisms can change their behavior toward the plant host and how they affect the plant's growth and health.

I work with a type of grass called Arabidopsis thaliana (シロイヌナズナ) which is known to naturally develop symbiosis with the fungi Colletotrichum tofieldiae. Previous studies showed that fungi C. tofieldiae can help Arabidopsis survive in low phosphorus (リン) soil by phosphate transfer. During an experiment, a species of bacteria called Pseudomonas aeruginosa (緑膿菌) was isolated from C. tofieldiae-infected root. This bacteria is interesting because it can produce various harmful volatile compounds (揮発性物質) for plants. Thus, in this talk, I will share my research on the triangle relationship between grass Arabidopsis, fungi C. tofieldiae, and bacteria P. aeruginosa and how nutrient condition changes their mode of interaction.
8. 講義形式:
☒対面 ・ ☐オンライン (どちらか選択ください。)
- 1) 講義時間 90分 質疑応答時間 15分
- 2) 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)
プロジェクター使用による講義

3) 事前学習

☒ ・ 無 (どちらかに○をしてください。)

使用教材 講師の方が所属する研究室のウェブページ

9. その他特筆すべき事項:

講師の方が話のスピードをゆっくりにしてくださったこと、多くの写真や図を交えて解説してくださったことにより、大変わかりやすかった。

Form B-2
(FY2023)
Must be typed

Date (日付)
22 January 2024 (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): Yuniar Devi UTAMI (ID No. P23091)
- Name and title of the accompanying person (講義補助者の職・氏名)
東京大学大学院 1 年生・椎名昭斗 (SHIINA Akito)
- Participating school (学校名): Chiba Prefectural Sakura High School
- Date (実施日時): 18 January 2024 (Date/Month/Year: 日/月/年)
- Lecture title (講義題目):
The tripartite interaction of *Arabidopsis thaliana*, *Pseudomonas aeruginosa*, and *Colletotrichum tofieldiae* is governed by nutrient condition
- 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) 70 min (分), Q&A time (質疑応答時間) 20 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))
Used projector to show the presentation slides
- Lecture summary (講義概要): Please summarize your lecture within 200-500 words.
I started the lecture around 4 PM with 33 students most of them belonging to the 11th grade. There were also three teachers attending the presentation. I began my presentation by introducing the lab I belong to currently. Then, I explained about my country, Indonesia, and some facts about its geography. I also taught the students some Indonesian phrases as an ice break. Further, I talked about my hometown, my biology class during high school, and how all of these things ignited my interest in science. I also explained how I learned English through playing console games during my childhood and how it helped me to secure a MEXT scholarship for my doctoral study in Japan.
Next, I spoke about the scientific part of my presentation. I briefly presented my doctoral research and the interesting facts about my research object; Termites. I also mentioned the perils I went through during my study to find new species of bacteria and give them the

scientific name in Latin words. Finally, I gave a simple lecture on my current research about how nutrition in the environment affects the triangle relationship between plants, bacteria, and fungi. After that, during the question-and-answer session, some students asked about the scientific part, such as my current experimental setup for the bacteria. The other ones asked about other things such as the other game I like to play on consoles. With the end of the Q&A session, the lecture then finished around 5.30 PM as scheduled.

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

- Impressions and comments from the accompanying person（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。）:

科学に興味を持つ機会として価値があり、自分も高校生の頃に受けたかったと思いました。Yuniarさんは英語がわかりやすかったため、高校生も理解しているようでした。しかし、講演者の英語が早い、もしくは流暢すぎると高校生には過酷な時間になるかもしれません。その場合は講義補助者が重要になると感じました。

