

様式 A-1
(FY2024)

2024 年 12 月 20 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: 栃木県立佐野高等学校・茂木幹雄
2. 講師氏名: Dr. Rehenuma TABASSUM
3. 講義補助者氏名:
4. 実施日時: 2024 年 12 月 19 日 (金) 14:50 ~ 15:50
5. 参加生徒: 高 1 年生 32 人、高 2 年生 31 人 (合計 63 人)
備考: 高校 1 年生は生物選択予定者、高校 2 年生は生物選択者がほとんど
6. 講義題目: Unraveling the Secrets of Rice Endosperm.
7. 講義概要: 米の生産と地球温暖化がもたらす課題に焦点を当て、学術的経歴と研究について講演していただきました。白い未熟な米粒と米のデンプン粒の大きさを決定する重要な遺伝子について説明し、バングラデシュ、その位置、文化、ノーベル賞受賞者、そしてシレット農業大学での研究について紹介を受けました。また、タンパク質構造の構築や籾殻の観察などの実践的な活動を通して、農業科学と米加工の話もしていただきました。
併せて、国立研究開発法人農業・食品産業技術総合研究機構(農研機構)が提供する世界の米のコアコレクションから選りすぐりの米粒を持ってきていただき、観察をさせていただきました。
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 50 分 質疑応答時間 10 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、実験・実習等は無し
 - 3) 事前学習
有 ・ ☒無 (どちらかに○をしてください。)
使用教材
9. その他特筆すべき事項:

Form B-2
(FY2024)
Must be typed

Date (日付) 24/12/2024

(Date/Month/Year: 日/月/年)

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

- Fellow's name (講師氏名): Rehenuma TABASSUM (ID No. P23388)

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

N/A

- Participating school (学校名): Tochigi Prefectural Sano High School

- Date (実施日時): 19/12/2024 (Date/Month/Year: 日/月/年)

- Lecture title (講義題目):

Unraveling the Secrets of Rice Endosperm

- 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) 40 min (分), Q&A time (質疑応答時間) 5 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))

The lecture was conducted using a projector, printed A4 pages displaying the chemical structures of essential amino acids, and hands-on demonstrations. These included observing 72 rice endosperm samples from the World Rice Core collection and showcasing panicles of Nipponbare rice to demonstrate the dehulling process using a mini hand rice huller.

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

I began my lecture by sharing an overview of my academic journey and research in agricultural science. I introduced myself with a concise CV, outlining my educational and professional background. The lecture then shifted to an introduction to Bangladesh, focusing on its geography, climate, and rich cultural heritage. I showcased images of traditional Bangladeshi cuisine and highlighted the achievements of Nobel Laureates from the country. Additionally, I discussed Sylhet Agricultural University (SAU), where I am currently employed, emphasizing its academic programs and facilities. I explained my decision to pursue advanced research in Japan, driven by the country's cutting-edge research opportunities, global networking potential, welcoming people, and safety. I highlighted the profound impact Japan has had on my academic and personal growth. The discussion then moved to my field of expertise, beginning with an explanation of basic plant biology. I presented my PhD research on the chalky grain mutant 'flo11-2' in rice, addressing the global importance of rice and its cultural significance in Japan. I explained how global warming

exacerbates chalky grain formation, affecting rice quality. My research identified the plastid-localized 70-kDa heat shock protein 2 (cpHsp70-2) as a critical gene influencing chalkiness, with daytime temperatures playing a significant role. I also discussed my current postdoctoral research, which explores molecular factors influencing starch granules in rice. Specifically, I study the vacuolar invertase (OsINV3) gene and its role in regulating grain size and starch production. In conclusion, the lecture offered insights into my academic and professional journey, the culture of Bangladesh, and the vital research I am conducting in Japan. It aimed to not only share knowledge about my field but also encourage cultural exchange and stimulate academic curiosity among the audience.

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

I brought 20 A4 printed sheets, each displaying the chemical structure of a different essential amino acid. Using these, students engaged in a hands-on activity where they built protein primary, secondary, and tertiary structures, allowing them to better grasp the complex folding patterns critical to protein function. Additionally, I showcased 72 rice endosperms from the World Rice Core Collection, representing a diverse range of rice varieties from countries such as Japan, India, the Philippines, Laos, Thailand, Italy, and others. To further enhance the learning experience, I demonstrated how to use a mini hand rice huller with Nipponbare panicles to produce brown rice. Students also observed and compared the physical differences between Grade 1 Japanese brown rice and polished rice. These interactive demonstrations were well-received and greatly enjoyed by the students. Overall, the blend of theoretical concepts and practical activities ignited their enthusiasm and deepened their understanding of rice cultivation, processing, and protein structure..

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

Not applicable