

(For JSPS Fellow)

Form B-5

Date (日付)

01/12/2016 (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): MOHAMMAD ASLAM (ID No. P 15102)

- Participating school (学校名): Iwate Prefectural Mizusawa High School

- Date (実施日時): 15/11/2016 (Date/Month/Year: 日/月/年)

- Lecture title (講演題目): Development of genetically modified plants with improved stress
Tolerance
ストレス耐性が向上した遺伝子組み換え植物の発達

- Lecture summary (講演概要): Please summary your lecture 200-500 words.

Summary

Plants being sessile in nature are forced to face multiple biotic and abiotic cues throughout their life. Abiotic stresses such as cold, drought, salinity, extremes of temperature have long been known as major limitation for plant growth and crop productivity. The effect of each abiotic factor depends on its quantity or intensity. However, over the period of time plants have developed the mechanisms to increase their tolerance to extreme environments. Exposure to stresses leads to physical adaptations along with several complex mechanisms of interactive cellular and molecular changes required for survival of plants under these adverse climatic conditions.

Traditional breeding strategies take long time and till now little progress has been made in improving stress tolerance by utilizing traditional breeding program. Biotechnology, however, offers new techniques that can be used to develop transgenic crop plants with improved tolerance to stress. In recent years, many successful experiments involving transgenic plants have been performed where expression of a transgene resulted in stress tolerant phenotype. Clearly, investigating plant responses to stress, in order to produce stress tolerant plants which can produce a higher yield to meet the food requirements of the world's population is today's demand.

My research is focused to understand how plants react and adapt to environmental cues such as temperatures extreme. Currently, I am studying microRNA regulation in plants with reference to low temperature response. My studies lead to identification of some microRNA(s). Currently, I am validating few of the microRNAs via transgenic approach.

- Language used (使用言語): ENGLISH

- Lecture format (講演形式):

◆Lecture time (講演時間) 105 min (分), Q&A time (質疑応答時間) 15 min (分)

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

(講演方法 (例: プロジェクター使用による講演、実験・実習の有無など))

Used projector also conducted experiment

◆Interpretation (ex.: assistance by accompanied person, provided Japanese explanation by yourself) (通訳 (例: 同行者によるサポート、講師本人による日本語説明))

Assistance by accompanied person

◆Name and title of accompanied person (同行者 職・氏名)

Kobayashi Yukie 学部生 4 年

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

I appreciate JSPS' s Science Dialogue Program it is very good for students. It is great tool to motivate them to become future scientist.

- Impressions and opinions from accompanied person (同行者の方から、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。):

Yukie was very happy to participate in Science Dialogue Program. It was her 2nd Science Dialogue Program. She took this as an opportunity to explore her abilities to deliver lecture in future.