Must be typed

（For JSPS Fellow）

Form B-5

Date（日付）
25/03/2016 （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）: Fukushima Prefectural Iwaki High School

- Date （実施日時）: 12/03/2016 （Date/Month/Year:日/月/年）

- Lecture title（講演題目）: Engineering Plants For Enhance Tolerance to Abiotic Stresses

非生物的ストレスに対する耐性を強化するためにエンジニアリング植物

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

Summary

The crop plants provide over 90% of human need for calories, 75% by cereals; rest is provided by root crops, oil seeds and other vegetables followed by marine sources (3%). However, according to the Food and Agriculture Organization of the United Nations (FAO) the world will need 70 percent more food by 2050. As reported by FAO the major challenges world agriculture is going to face in the coming years will be struggle against hunger and poverty, multiply food production, judicial use of natural resources and adapting to climate change. With the increase of world population the agricultural land is shrinking gradually. Production of enough food for world population will depends on to increase in production by decreasing the losses (loss often caused by climatic conditions) and high-tech R&D. Innovative technologies to increase total crop productivity under harsh environmental conditions has always been a major concern of scientists. 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.

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.

My research is focused to understand how plants react and adapt to environmental cues (abiotic stresses), 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 in the validation process of 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） 60 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

◆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

◆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 student 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. She took this as an opportunity to explore her abilities to deliver lecture in future.