

(For JSPS Fellow)

Form B-5

Date (日付) 27/12/2016

(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): Mamata Sachin Singhvi (ID No. P16100)
- Participating school (学校名): Fukuoka Prefectural Kasumigaoka Senior High School
(Fukuoka-city, Fukuoka)
- Date(実施日時): 21/12/2016 (Date/Month/Year:日/月/年)
- Lecture title (講演題目): (in English) Conversion of biomass to value added products

(in Japanese)

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

Lignocellulosic biomass holds the key to supplying the basic needs of society for sustainable production of chemicals and fuels without impacting the human food supply. The production of second-generation biofuels and chemicals from lignocellulosic biomass has not yet been commercialized due to its complex and recalcitrance structure. Therefore, the challenges involved in the production of lignocellulosic biomass-derived fuels and chemicals must be addressed. Search for economic pretreatment methods has been recognized as one of the main hurdles for processing of biomass to biofuels and chemicals.

The presentation will focus on the process of exploiting biomass for the production of value added products like lactic acid which is used as a raw material for the production of polylactic acid (PLA), a biodegradable polymer which is well-known as a sustainable bio-plastic material. Lignocellulosic substances are abundantly available sources of renewable biopolymer (carbohydrates) for the production of biofuels or other bio-based products. Cellulases are the key enzymes required for the degradation of lignocellulosic polysaccharides into simple monomeric sugars, which are the main 'C' sources for the production of biofuels or other value added products through microbial fermentation. The production of cellulase is a major factor in the hydrolysis of cellulose materials. Unfortunately, high cost of cellulase production is one of the factors, which poses problems in the economics of biofuels and chemicals production from biomass. We have reported the isolation of mutants of *P. janthinellum* NCIM 1171 capable of producing enhanced levels of cellulases. These improved strains have been exploited to convert biomass to monomers that can then be diverted to produce value added chemicals like ethanol or lactic acid using SSAF processes.

- Language used (使用言語): English

- Lecture format (講演形式):

◆Lecture time (講演時間) 75 min (分), Q&A time (質疑応答時間) 30 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))

Powerpoint ppt, 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) Miss Jiaming Tan

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

- 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。): Miss Jiaming Tan was assisted me for Japanese translation for some queries. She may need to have certificate if possible.