

JOINT EVENT

5<sup>th</sup> World Conference on **Climate Change**

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16<sup>th</sup> Annual Meeting onOctober 04-06, 2018  
London, UK**Environmental Toxicology and Biological Systems****CO<sub>2</sub> bio-sequestration by *Chlorella vulgaris* in response to different levels of CO<sub>2</sub>**

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The purpose of this study is to assess technology of capturing carbon dioxide (CO<sub>2</sub>) emissions generated by industry that use combustion systems by utilizing microalgae *Chlorella vulgaris*. The microalgae were cultivated in bioreactor culture pond raceway type. The experiment is expected to be useful in mitigating the effects of greenhouse gases in reducing the CO<sub>2</sub> emissions. The aim of this study was to sequester CO<sub>2</sub> by microalgae *Chlorella vulgaris* under the different level of CO<sub>2</sub>. The research activities included: 1. characterization of boiler flue gas; 2. operation of culture ponds; and 3. sampling and sample analysis. The results of this study showed that the initial assessment absorption of the flue gas by microalgae using 1000 L raceway pond completed by heat exchanger were quite promising. The results indicated that transfer of CO<sub>2</sub> into the pond culture system was run well. This was identified from the success of cooling the boiler flue gas from the temperature of about 200°C to below ambient temperature. Except for temperature, the gas bubbles into the culture media were quite fine. Therefore the contact between the gas and the media was well performed. Efficiency of CO<sub>2</sub> absorption by *Chlorella vulgaris* reached 0%, 99.8% and 96.2% with average CO<sub>2</sub> level concentration of 0%, 6.2% and 8.1% respectively. The ultimate CO<sub>2</sub> sequestration rate of *Chlorella vulgaris* was 0.1462g/L/d recorded at 8.1% CO<sub>2</sub> concentration.

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