MINISTRY OF EDUCATION AND TRAINING
QUY NHON UNIVERSITY

SOCIALIST REPUBLIC OF VIETNAM
Independence – Fredoom - Happiness

INFORMATION

ON THE NEW CONTRIBUTIONS OF DOCTORAL THESIS

Title: ***Synthesis of MS_2 (M = Mo, W) and their modification with g-C_3N_4 as photocatalysts***
Major: **Physical and Theoretical Chemistry** Code No.: **9440119**
PhD student: **Truong Duy Huong**
Course: **4 (2016-2020)**
Advisor: **Assoc. Prof. Vo Vien**
Training institution: **Quy Nhon University**

NEW CONTRIBUTIONS OF THE THESIS

1. The two composites WS_2/g-C_3N_4 and MoS_2/g-C_3N_4 were successfully constructed via a facile calcination directly from the precursors of tungstic acid and sodium molybdate with thiourea in the solid state, respectively. The prepared materials exhibited their strong photocatalytic activities through the photodegradation of organic pollutants such as methylene blue and rhodamine B.
2. The adsorption step plays a crucial role in the whole photocatalytic process, the more the target molecules adsorb on the photocatalyst's surface the faster they would be photodegraded. However, too many the adsorbed molecules on the surface could lead to a negative effect on the overall photodegradation rate due to the lack of oxidizer on that surface such as oxygen.
3. The reaction system used MoS_2/g-C_3N_4 photocatalyst and light-emitting diode (LED) was proven to have a value of new benchmark photochemical space-time yield (PSTY) of $8.3x10^{-3}$ $day^{-1}.kW^{-1}$, which was 100 times higher than that of the previous system also employed the same photocatalyst MoS_2/g-C_3N_4 over the same target molecule rhodamine B.
4. The designed photocatalytic pilot can operate automatically and use the prepared catalyst along with the application of natural sedimentation for recycling photocatalyst opens a new door to transfer the lab-scale into various practical applications including wastewater treatment under visible light.

Binh Dinh, 07/6/2021

Advisor	PhD Student
Assoc. Prof. Vo Vien	**Truong Duy Huong**