

Information on Doctoral thesis of Fellows Le Thi Thanh Thuy

1. Full name: Le Thi Thanh Thuy
2. Gender: female
3. Date of birth: 22/11/1976
4. Place of birth: Quy Nhon-Binh Dinh
5. Admission decision number: 2677/SĐH December 29, 2006 of President of Vietnam National University, Hanoi.
6. Changes in academic process: None
7. Official thesis title: Study of iron and carbon co-doped TiO₂ photocatalyst on the degradation of stable organic pollutants in water under visible irradiation.
8. Major: Inorganic chemistry
9. Code: 62 44 25 01
10. Supervisors: Assoc.Prof.Dr. Nguyen Van Noi;

Assoc.Prof.Dr. Nguyen Dinh Bang.

11. Summary of the new findings of the thesis:

- Iron and carbon co-doped TiO₂ supported on PSS or HNO₃-activated carbon were firstly successfully synthesized by using sol-gel method followed by hydrothermal treatment. The factors affecting to the synthesis were systematically and comprehensively investigated.
- The Combination of the photocatalysis and Fenton process using a suitable amount of H₂O₂ accelerated the degradation of Rhodamine B.
- The complete mineralization of Rhodamine B under visible irradiation was investigated, and the catalysts supported on activated carbon could be easily filtered and reused for at least 5 times.
- The catalysts were successfully used in the treatment of wastewater from Duong Noi handicraft village with H₂O₂ addition, reducing the COD value to meet standard limitations for industrial wastewater discharge.

12. Practical applicability:

The results of the research show that the photocatalytic materials based on iron and carbon co-doped TiO₂ and supported on activated carbon can be applied in the treatment of dye chemicals in textile wastewater.

13. Further research directions:

Investigation into the use of obtained photocatalytic materials for the treatment of other persistent organic pollutants.

14. Thesis-related publications:

Nguyen Minh Phuong, Le Thi Thanh Thuy, Nguyen Dieu Thu, Nguyen Dinh Bang and Nguyen Van Noi (2011), "Preparation and photocatalytic activity of TiO_2 -based catalysts on degradation of organic pollutants", *Proceedings of IWNA 2011*, pp. 719-722.

Le Thi Thanh Thuy, Nguyen Minh Phuong, Nguyen Huu Huy, Tran Hong Nhung, Tran Nhu Ngoc, Nguyen Dinh Bang, Nguyen Van Noi (2012), "Preparation and characterization of iron and carbon co-doped titanium dioxide and its application in degradation of Rhodamine B", *Journal of Analytical Sciences in Physics, Chemistry and Biology*, vol 17, No. 1, pp.3-7

Le Thi Thanh Thuy, Nguyen Minh Phuong, Nguyen Dieu Thu, Nguyen Manh Ha, Le Thanh Son, Nguyen Dinh Bang, Nguyen Van Noi (2012), "Study of the photocatalytic activity of Fe/C- TiO_2 nanomaterials under visible irradiation on degradation of Rhodamine B", *Vietnam journal of Chemistry*, vol. 50, No. 4A, pp. 446-449.

Le Thi Thanh Thuy, Nguyen Minh Phuong, Nguyen Dinh Bang, Nguyen Van Noi (2012), "The application of Fenton process and visible photocatalytic iron and carbon co-doped titanium dioxide for Rhodamine B degradation", *VNU journal of science*. vol. 28, No. 28, pp.102-107.

Le Thi Thanh Thuy, Le Thi Bich Thuan, Nguyen Phi Hung, Nguyen Van Noi (2013), "Synthesis and characterization of Fe- and C-, N-, S- doped titanium dioxide nanomaterials for the degradation of Rhodamin B under visible light irradiation", *VN Journal of Adsorption and Catalysis*, vol. 2, no. 1, p. 88-93.

Le Thi Thanh Thuy, Le Thi Bich Thuan, Nguyen Phi Hung, Tran Thi An, Nguyen Huu Huy, Nguyen Minh Phuong, Nguyen Dinh Bang, Nguyen Van Noi (2013), "Kinetics of Rhodamin B degradation using iron and carbon doped titanium dioxide photocatalyst", *Vietnam journal of Chemistry*, vol 51, no. 2, pp.252-256.

Le Thi Thanh Thuy, Phung Thi Nguyen, Phi Thi Huong, Nguyen Minh Phuong, Nguyen Dinh Bang, Nguyen Van Noi (2013), "Application of photocatalyst Fe-C- TiO_2 coated on activated carbon in the degradation of Rhodamin B", *Vietnam journal of Chemistry*, vol. 51, no. 3, p.361-365.

Nguyen Thi Thien Kieu, Bui Anh Tuan, Nguyen Thi Lien, Le Thi Thanh Thuy, Dao Ngoc Nhiem, Nguyen Minh Phuong, Nguyen Dinh Bang, Nguyen Van Noi, Le Thanh Son (2013), "Preparation and photocatalytic activity of Nitrogen and Carbon co-doped Titanium dioxide on degradation of organic pollutants", *Vietnam journal of Chemistry*, Vol. 51, no. 5 (pending).

Vu Thi Kim Thanh, Pham Thi Khanh Ly, Nguyen Quang Trung, Chu Ngoc Chau, Nguyen Manh Ha, Nguyen Minh Phuong, Le Tuan Anh, Le Thi Thanh Thuy, Nguyen Van Noi, Nguyen Dinh Bang (2013),

“Study on degradation of pesticides using iron and carbon co-doped titanium dioxide catalyst”, *Vietnam journal of Chemistry*, vol. 51, no.5, (pending)