



# HOANG ANH THI

## QA/QC Technician

✉ anhtihg833@gmail.com  
☎ (+84) 345 538 777 (Zalo)  
📍 Trang Dai Ward, Dong Nai  
🌐 <https://orcid.org/0009-0007-7882-536X>

## PROFILE

A Chemistry graduate with over 4 years of laboratory experience in analytical, environmental, and food chemistry. Proficient in operating modern analytical instruments, performing sample preparation, and generating reports. Possesses strong problem-solving skills, with the ability to work both independently and collaboratively. Seeking an opportunity to contribute and grow in a professional environment.

## EDUCATION

### ENGINEER IN ANALYTICAL CHEMISTRY

Industrial University of Ho Chi Minh City  
2016 - 2020

## SKILLS

- Analyze and interpret issues, and resolve technical problems.
- Manage time effectively and organize work efficiently.
- Work independently and collaborate effectively in teams.
- Computer skills: Word, Excel, P.Point.

## LANGUAGE

English: VSTEP B1 level

## SCIENTIFIC PUBLICATIONS

Thi, H. A., Phuc, L. T., Van Trong, N., & Thuy, T.T.T. (2024). Synthesis of materials from agricultural wastes combined with Fe<sub>3</sub>O<sub>4</sub> for methylene blue adsorption and application to treat organic pollutants in water samples. *Vietnam Journal of Chemistry*, 62(1), 68-77. (Scopus Q3).

DOI: <https://doi.org/10.1002/vjch.202300120>

Thuy, T. T. T., Thanh Nha, T., Thi, H. A., & Van Trong, N. (2025). Comparison Of The Methylene Blue Dye Removal Ability Of Magnetic Materials Synthesized From Various Types Of Fruit Peels. *Chemistry Journal Of Moldova. General, Industrial and Ecological Chemistry*, 20(1), 38-50 (Scopus Q4).

DOI: <https://doi.org/10.19261/cjm.2025.1271>

## WORK EXPERIENCE

### LABORATORY TEAM LEADER & GENERAL AFFAIRS OFFICER

DONG NAI WATER SUPPLY & CONSTRUCTION SERVICES JSC

10/2022 - Present

- Supervised field sampling, monitored water quality, and prepared monthly/quarterly/yearly reports.
- Oversaw quality of raw materials used in water treatment for domestic use.
- Managed documents directly related to water quality.
- Handled administrative and HR tasks: shift scheduling, attendance tracking, etc.

### LABORATORY TECHNICIAN

WANG LONG (VIETNAM) CO., LTD.

02/2022 - 10/2022

- Checked quality of input materials and finished chemical products. Researched and developed chemicals for the textile dyeing industry.

### LABORATORY TECHNICIAN

SAO VIET ENVIROMENT AND LABOR SAFETY LLC

09/2020 - 09/2021

- Analyzed environmental samples: nitrite, Cu, Pb, Zn, Fe, etc.
- Operated equipment such as UV-VIS, pH meter, AAS, etc.
- Performed inter-laboratory testing, calibration, and monitored procedures in the lab and field.

### INTERN AT CONSUMER GOODS DEPARTMENT

QUALITY ASSURANCE AND TESTING CENTER 3 (QUATEST 3)

11/2019 - 01/2020

- Prepared and handled samples.
- Analyzed indicators in household goods such as metals, volatile organic compounds, etc.
- Operated equipment: UV-VIS spectrophotometer, pH meter, Soxhlet extraction system.



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## Chuyên viên QA/QC

✉ anhthig833@gmail.com

☎ (+84) 345 538 777 (Zalo)

📍 Trảng Dài, Đồng Nai

🌐 <https://orcid.org/0009-0007-7882-536X>

## GIỚI THIỆU

Tốt nghiệp ngành Hóa học với hơn 4 năm kinh nghiệm làm việc trong phòng thí nghiệm về hóa phân tích, hóa môi trường, hóa thực phẩm,... Thành thạo vận hành các thiết bị phân tích hiện đại, chuẩn bị mẫu và lập báo cáo kết quả. Có kỹ năng giải quyết vấn đề tốt, có khả năng làm việc độc lập cũng như phối hợp nhóm hiệu quả. Mong muốn được đóng góp và phát triển trong môi trường chuyên nghiệp.

## HỌC VẤN

### KỸ SƯ HOÁ PHÂN TÍCH

Trường Đại học Công nghiệp Thành phố Hồ Chí Minh

2016 - 2020

## KỸ NĂNG

- Phân tích, diễn giải vấn đề và xử lý sự cố kỹ thuật.
- Quản lý thời gian và tổ chức công việc hiệu quả.
- Làm việc độc lập và phối hợp nhóm tốt.
- Tin học: Word, Excel, PowerPoint.

### NGOẠI NGỮ

Anh ngữ: Chứng chỉ VSTEP bậc B1

## NGHIÊN CỨU KHOA HỌC

Thi, H. A., Phuc, L. T., Van Trong, N., & Thuy, T.T.T. (2024). Synthesis of materials from agricultural wastes combined with  $Fe_3O_4$  for methylene blue adsorption and application to treat organic pollutants in water samples. *Vietnam Journal of Chemistry*, 62(1), 68-77. (Scopus Q3).

DOI: <https://doi.org/10.1002/vjch.202300120>

Thuy, T. T. T., Thanh Nha, T., Thi, H. A., & Van Trong, N. (2025). Comparison Of The Methylene Blue Dye Removal Ability Of Magnetic Materials Synthesized From Various Types Of Fruit Peels. *Chemistry Journal Of Moldova. General, Industrial and Ecological Chemistry*, 20(1), 38-50 (Scopus Q4).

DOI: <https://doi.org/10.19261/cjm.2025.1271>

## KINH NGHIỆM LÀM VIỆC

### TỔ TRƯỞNG PHÒNG THÍ NGHIỆM KIỂM PHÒNG TỔNG HỢP

CÔNG TY CỔ PHẦN DỊCH VỤ VÀ XÂY DỰNG CẤP NƯỚC ĐỒNG NAI

10/2022 - nay

- Giám sát lấy mẫu, theo dõi chất lượng nước, báo cáo định kỳ.
- Phối hợp với Quatest 3 trong công tác lấy mẫu hiện trường.
- Quản lý chất lượng nguyên vật liệu dùng trong lĩnh vực cấp nước sinh hoạt bao gồm phèn nhôm -  $Al_2(SO_4)_3$ , vôi -  $Ca(OH)_2$ ,  $Cl_2$  và các hồ sơ liên quan.
- Thực hiện công tác hành chính - nhân sự: sắp xếp lịch trực, chấm công, điều phối nhân sự,...

### KỸ THUẬT VIÊN PHÒNG THÍ NGHIỆM

CÔNG TY TNHH WANG LONG (VIỆT NAM)

02/2022 - 10/2022

- Kiểm tra chất lượng nguyên liệu đầu vào và hóa chất thành phẩm. Nghiên cứu và phát triển hóa chất ứng dụng trong ngành dệt nhuộm.

### KỸ THUẬT VIÊN PHÒNG THÍ NGHIỆM

CÔNG TY TNHH MÔI TRƯỜNG VÀ AN TOÀN LAO ĐỘNG SAO VIỆT

09/2020 - 09/2021

- Phân tích các chỉ tiêu trong mẫu môi trường như nitrit, nitrat,...
- Vận hành các thiết bị phân tích như UV-VIS, máy đo pH, AAS,...
- Thực hiện xét nghiệm, hiệu chuẩn, thử nghiệm và giám sát quy trình phòng thí nghiệm và ngoài hiện trường.

### THỰC TẬP SINH PHÒNG HÀNG TIÊU DÙNG

TRUNG TÂM KỸ THUẬT TIÊU CHUẨN ĐO LƯỜNG CHẤT LƯỢNG 3

11/2019 - 01/2020

- Chuẩn bị và xử lý mẫu.
- Phân tích các chỉ tiêu trong mẫu hàng gia dụng như kim loại, hợp chất hữu cơ dễ bay hơi,...
- Vận hành thiết bị: máy quang phổ UV-VIS, máy đo pH, hệ thống chiết Soxhlet,...



SOCIALIST REPUBLIC OF VIET NAM  
Independence - Freedom - Happiness

**PRESIDENT**  
INDUSTRIAL UNIVERSITY OF HO CHI MINH CITY

has conferred

## THE DEGREE OF ENGINEER

Chemical Engineering

*(This academic program is certified by AUN-QA)*

Upon: **Hoàng Anh Thi**

Date of birth: 07 November 1998

Degree classification: **Good**

*Ho Chi Minh city, 07 August 2020*



Reg. No.: 618/947/08.2020/16015201



CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM  
Độc lập - Tự do - Hạnh phúc

**HIỆU TRƯỞNG**  
TRƯỜNG ĐẠI HỌC CÔNG NGHIỆP TP. HỒ CHÍ MINH

cấp

## BẰNG KỸ SƯ

Công nghệ kỹ thuật hóa học

*(Chương trình đào tạo đã đạt chuẩn kiểm định AUN-QA)*

Cho: **Hoàng Anh Thi**

Ngày sinh: 07/11/1998

Hạng tốt nghiệp: **Khá**

*TP. Hồ Chí Minh, ngày 07 tháng 08 năm 2020*



**HIỆU TRƯỞNG**

Số hiệu: **071014**

*TS. Phạm Hồng Hải*

Số vào sổ cấp bằng: 618/947/08.2020/16015201





CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM  
Độc lập - Tự do - Hạnh phúc

## CHỨNG CHỈ

### ỨNG DỤNG CÔNG NGHỆ THÔNG TIN CƠ BẢN

Cấp cho: ..... *Hoàng Anh Thi* .....

Sinh ngày: ..... 07/11/1998 ..... Nơi sinh: ..... Đồng Nai .....

Đạt yêu cầu bài thi ứng dụng công nghệ thông tin cơ bản tại Hội đồng thi: .....

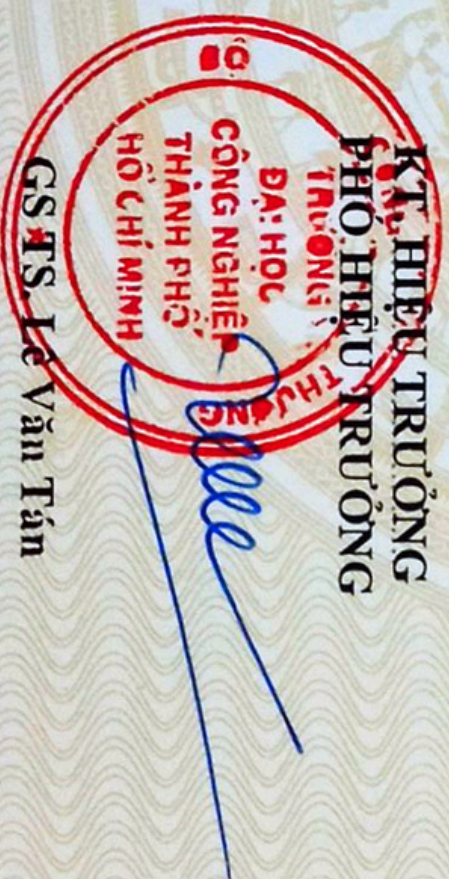
*Trường Đại học Công nghiệp Thành phố Hồ Chí Minh*

Kết quả: Điểm trắc nghiệm ..... 6.0 ..... Điểm thực hành: ..... 8.4 .....

*Thành phố Hồ Chí Minh*, ngày ..... 16 ..... tháng ..... 10 ..... năm ..... 2020 .....

Số hiệu: ..... 0005841 .....

Số vào sổ cấp chứng chỉ: ..... 20091117/CNNTTCB .....



GS.TS. Lê Văn Tân



SOCIALIST REPUBLIC OF VIETNAM  
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CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM  
Độc lập - Tự do - Hạnh phúc

## CERTIFICATE OF PROFICIENCY

## CHỨNG CHỈ NGOẠI NGỮ

IN ENGLISH

Ngôn ngữ: TIẾNG ANH

Level: 3

Bậc: 3

INDUSTRIAL UNIVERSITY OF HO CHI MINH CITY

TRƯỜNG ĐẠI HỌC CÔNG NGHIỆP THÀNH PHỐ HỒ CHÍ MINH

This is to certify that

Cấp cho

Full name: **Hoang Anh Thi**

Họ và tên: **Hoàng Anh Thi**

Date of birth: **07/11/1998**

Ngày sinh: **07/11/1998**

Has taken the Foreign Language Proficiency Assessment Exam based on the 6-level Foreign Language Proficiency Framework for Vietnam

Đã tham dự kỳ thi Đánh giá năng lực ngoại ngữ theo Khung năng lực ngoại ngữ 6 bậc dùng cho Việt Nam

Date of Exam: **28/08/2022**

Ngày thi: **28/08/2022**

Overall Score: **4.0**

Điểm thi: **4.0**

Listening: **3.5** Reading: **2.5**

Nghe: **3.5** Đọc: **2.5**

Speaking: **3.0** Writing: **6.0**

Nói: **3.0** Viết: **6.0**

*Ho Chi Minh City, 21 September 2022*

Thành phố Hồ Chí Minh, ngày 21 tháng 9 năm 2022

Decision number: 2244/QĐ-ĐHCN

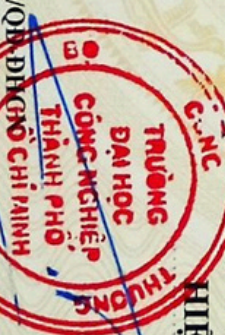
Số Quyết định: 2244/QĐ-ĐHCN

Certificate number: **IUH.FL.0000170**

Số hiệu: **IUH.FL.0000170** TS. Phan Hồng Hải

Reference number: 43/220828/CC3

Số vào sổ cấp chứng chỉ: 43/220828/CC3



HIỆU TRƯỞNG



## RESEARCH ARTICLE

# Synthesis of materials from agricultural wastes combined with $\text{Fe}_3\text{O}_4$ for methylene blue adsorption and application to treat organic pollutants in water samples

Hoang Anh Thi | Le Thien Phuc | Nguyen Van Trong | Tran Thi Thanh Thuy

Faculty of Chemical Engineering, Industrial University of Ho Chi Minh City (IUH), Ho Chi Minh City, Vietnam

**Correspondence**

Tran Thi Thanh Thuy, Faculty of Chemical Engineering, Industrial University of Ho Chi Minh City (IUH), 12 Nguyen Van Bao, Ward 4, Go Vap District, Ho Chi Minh City 70000, Vietnam.  
Email: tranthithanhthuy@iuh.edu.vn

**Abstract**

This study presents the adsorption process of methylene blue and other organic pigments in water samples using synthetic materials derived from agricultural waste combined with  $\text{Fe}_3\text{O}_4$ . The properties of the materials were determined through Fourier transform infrared spectroscopy, scanning electron microscopy, X-ray diffraction, and nitrogen adsorption-desorption isotherm. The result shows the successful association of  $\text{Fe}_3\text{O}_4$  on materials prepared from agriculture with a surface area =  $3.594 \text{ m}^2 \text{ g}^{-1}$  and a pore size of 49.713 nm. The optimal factors of methylene blue removal process, such as pH, mass, initial concentration, time, and shaking speed, were also investigated, respectively. The maximum adsorption capacity of the material is  $268.64 \text{ mg g}^{-1}$ , with an adsorption efficiency of 98.84%. The research method was applied to analyze and evaluate the materials' adsorption capacity in the southern provinces of Vietnam water samples.

**KEYWORDS**

agricultural waste,  $\text{Fe}_3\text{O}_4$ , methylene blue, UV-visible

## 1 | INTRODUCTION

The development of industries such as textiles, food, chemical manufacturing, etc., leads to the massive discharge of pollutants into the water environment, especially organic dyes. Organic dyes in water seriously impact aquatic life and human health. Various methods have been and are being used to treat organic dyes, such as chemical methods, biological methods, and physical methods. Each method has its effectiveness, conditions, and limitations. Chemical processes, photocatalysis, and electrochemical methods are highly effective in treating dyes, but the byproducts of these processes pose secondary pollution issues. Biological methods are environmentally friendly, but their implementation conditions are too strict. Adsorption methods, nano-filtration membranes, and coagulation-flocculation processes have become popular due to their feasibility, flexibility, low cost, and environmentally friendly end products.<sup>1</sup> The present research focuses on improving the efficiency of methylene blue and the applicability of

adsorbent materials derived from agricultural waste on organic dye treatment in water. This research aims to achieve at least two objectives: first, to create potential adsorbent materials for organic dye adsorption from low-cost agricultural waste available in nature, and second, to contribute to reducing environmental pollution caused by these waste products. Currently, many studies have been published on the use of agricultural waste as a precursor for synthesizing adsorbent materials for organic dyes adsorption, such as orange peels,<sup>2,3</sup> grapefruit peel,<sup>4–7</sup> coffee grounds,<sup>8–10</sup> banana peels,<sup>11–15</sup> corn waste,<sup>16–20</sup> peanut shells,<sup>21–23</sup> durian waste,<sup>24–27</sup> dragon fruit peels,<sup>28–30</sup> etc. Dragon fruit peels have been attracting attention for synthesizing adsorbent materials for organic dyes adsorption due to the presence of compounds such as phenolic compounds, betalains, betacyanins, and other functional groups like  $\text{C}=\text{C}$ ,  $\text{C}=\text{O}$ ,  $\text{OH}$ , and  $\text{NH}$ .<sup>28–35</sup> However, there has yet to be any published research mentioning the transformation of  $\text{Fe}_3\text{O}_4$  onto dragon fruit peel material for absorbing organic dyes. Magnetic materials derived from



## COMPARISON OF THE METHYLENE BLUE DYE REMOVAL ABILITY OF MAGNETIC MATERIALS SYNTHESIZED FROM VARIOUS TYPES OF FRUIT PEELS

ThanhThuy Tran <sup>\*</sup>, ThanhNha Tran , AnhThi Hoang , VanTrong Nguyen 

*<sup>a</sup>Faculty of Chemical Engineering, Industrial University of HCM City,  
Nguyen Van Bao str., HCM City, 70000, Vietnam  
<sup>\*</sup>e-mail: [tranthithanhthuy@iuh.edu.vn](mailto:tranthithanhthuy@iuh.edu.vn)*

**Abstract.** This study involved the synthesis of magnetic materials derived from pomelo peel (PP@Fe<sub>3</sub>O<sub>4</sub>), durian peel (DP@Fe<sub>3</sub>O<sub>4</sub>), and banana peel (BP@Fe<sub>3</sub>O<sub>4</sub>). The characteristics of these materials were examined using SEM, FTIR, XRD, and BET techniques. The adsorption parameters for methylene blue using these magnetic materials, including pH, material concentration, and adsorption duration, were investigated to optimise adsorption efficiency. Results indicated that the most effective material amounts were 0.09 g, 0.18 g, and 0.06 g for PP@Fe<sub>3</sub>O<sub>4</sub>, DP@Fe<sub>3</sub>O<sub>4</sub>, and BP@Fe<sub>3</sub>O<sub>4</sub>, respectively, in 25 mL of methylene blue solution, corresponding to concentrations of 3.6 g/L, 7.2 g/L, and 2.4 g/L. Similarly, the optimal pH values for adsorption were found to be 5.9, 7.7, and 7.4, while the most efficient adsorption times were determined to be 95.3, 42.2, and 128.4 minutes, respectively. Under these conditions, the highest methylene blue adsorption efficiencies achieved were 97.7%, 97%, and 98.9%, respectively. These materials were also employed to assess the chemical oxygen demand index in select water samples.

**Keywords:** bio-magnetic adsorbent, sustainable technology, fruit peel waste utilization.

*Received: 31 January 2025/ Revised final: 28 April 2025/ Accepted: 2 May 2025*

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### Introduction

In today's modernized world, the advancement of industries like textiles, food processing, and chemical manufacturing has resulted in the release of significant volumes of waste into aquatic environments, particularly organic dyes. These dyes act as agents that diminish dissolved oxygen levels in water, posing substantial impacts on both organisms and human health. Various methods, including chemical, biological, and physical approaches, are employed to address organic dye pollutants [1]. However, each method exhibits distinct efficiency, requirements, and constraints. While chemical techniques, photocatalysis, and electrochemical methods are proficient in treating organic dyes, they often generate by-products that lead to secondary pollution. Environmentally sustainable biological methods necessitate stringent implementation conditions. Consequently, adsorption techniques, nanofiltration membranes, and coagulation processes have gained popularity due to their practicality, adaptability, cost-effectiveness, and eco-friendly outcomes.

Recently, there has been a surge in research exploring the utilization of fruit peels to fabricate adsorbent materials for organic dyes. These include orange peel [2,3], grapefruit peel [4,5], banana peel [6-8], apple peel [9,10], pineapple peel [11,12], durian peel [13-15], dragon fruit peel [16-19], coconut husk [20-22], watermelon peel [23,24], and mangosteen peel [25,26]. Various fruit peels are used to synthesize materials for adsorbing organic dyes due to the presence of compounds such as phenolic compounds, betalain, betacyanin with functional groups capable of adsorption such as C=C, C=O, O-H, N-H [16,27]. Most studies have involved preliminary treatment or carbonization of materials to enhance their adsorption capacity, with limited focus on material modification to further improve adsorption capacity.

Therefore, this study aims to compare the methylene blue adsorption capacity of magnetic materials synthesized from different fruit peels such as pomelo, durian, and banana. Magnetic materials enhance the efficiency of organic dye adsorption by combining adsorption capability