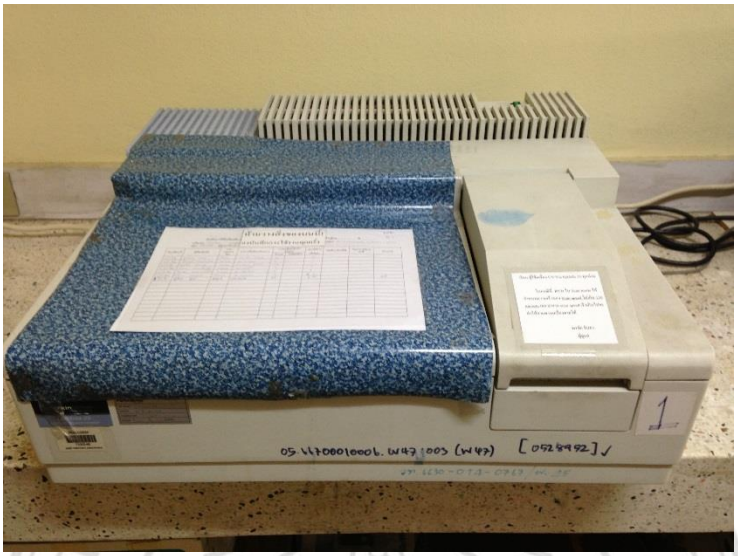
APPENDIX A

INSTRUMENTS

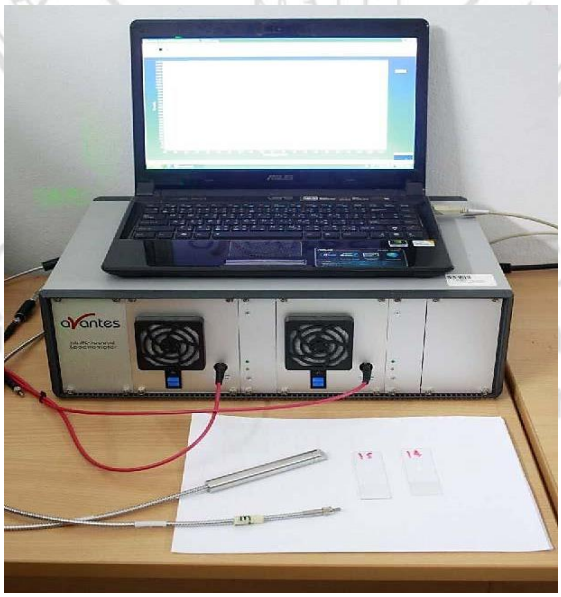
A. 1 X-ray diffraction (XRD) characterization

A.2 Scanning electron microscope (SEM)

A.3 Ultraviolet-visible spectroscopy (UV-vis spectroscopy)



A.4 Photoluminescence (PL)



A. 5 Energy Dispersive X-ray analysis (EDX)

A. 6 Brunauer Emmett Teller method (BET)

A. 7 X-ray photoelectron spectroscopy (XPS)

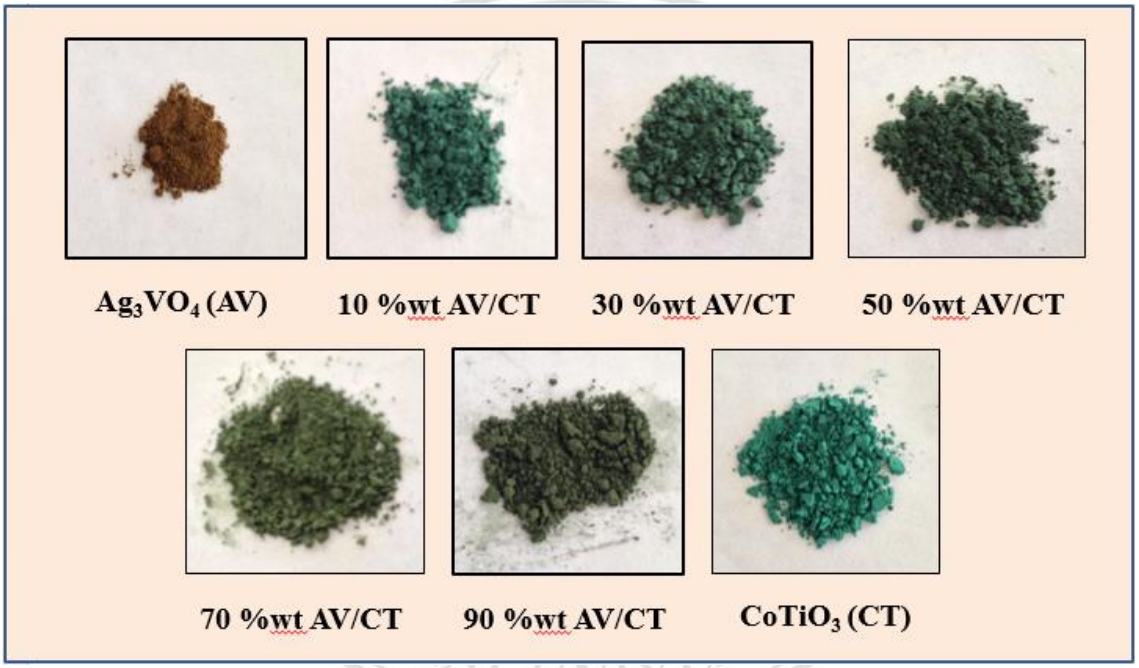
A. 8 Transmission Electron Microscopy (TEM)

A. 9 Acid Digestion Vessels, Polytetrafluoroethylene (PTFE) liner – Parr Instrument Company

APPENDIX B

Photocatalysts and Photoactivity

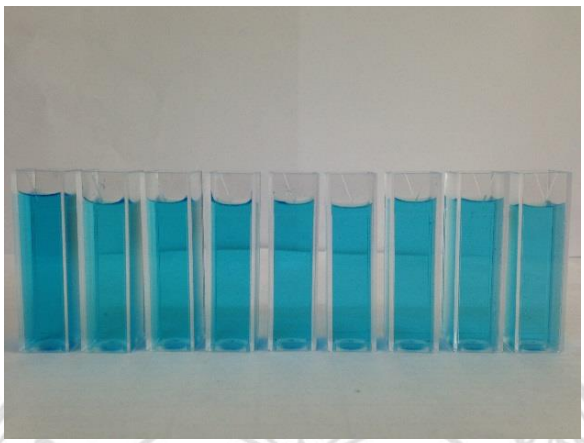
B. 1 Synthesized photocatalysts



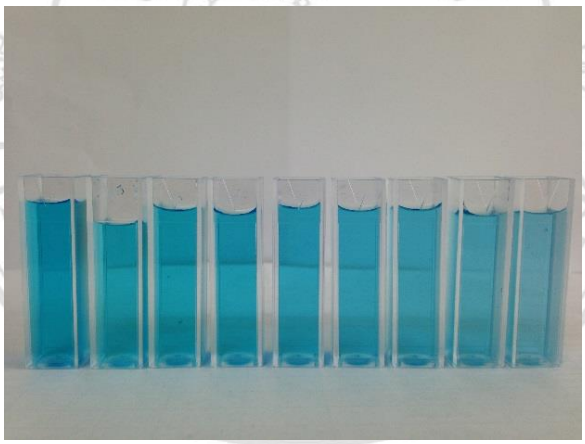
B. 2 Photocatalytic activity on methylene blue degradation

B. 2.1 Photolysis

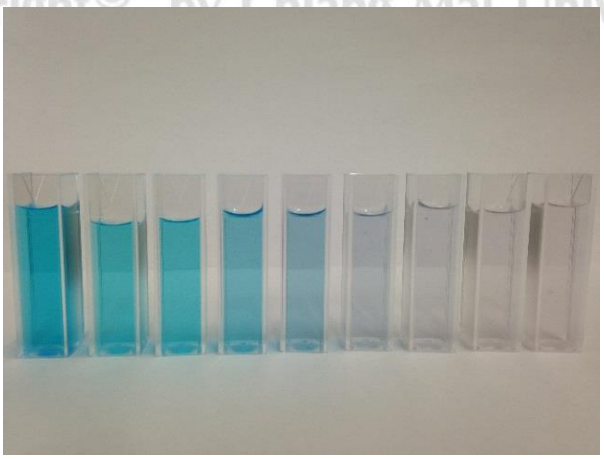
B. 2.2 10 %wt $Ag_3VO_4/CoTiO_3$



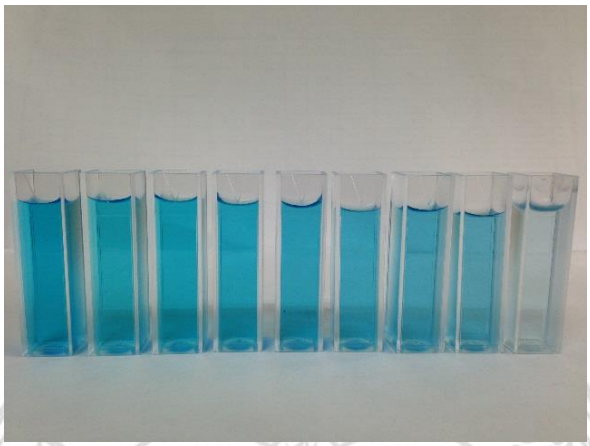
B. 2.3 30 %wt $Ag_3VO_4/CoTiO_3$



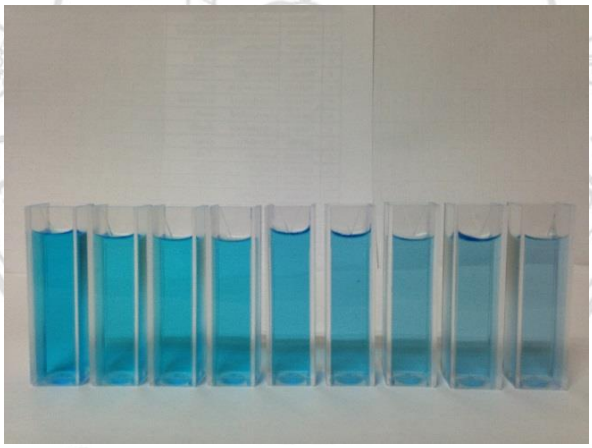
B. 2.4 50 %wt $Ag_3VO_4/CoTiO_3$



B. 2.5 70 %wt $Ag_3VO_4/CoTiO_3$



B. 2.6 90 %wt $Ag_3VO_4/CoTiO_3$



B. 2.7 50 %wt $Ag_3VO_4/CoTiO_3$ physical mixture

CURRICULUM VITAE

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Education 2009–2012, Bachelor of Science in Chemistry (1st class honour), Department of Chemistry, Faculty of Science, Chiang mai University, Chiang Mai, Thailand.

2013–2015, Master degree in Chemistry, Department of Chemistry, Faculty of Science, Chiang Mai University, Chiang Mai, Thailand.

Scholarship 2009–2015, Science Achievement Scholarship of Thailand, The Commission on Higher Education, Ministry of Education.

2012, The Young Scientist and Technologist Programme (YSTP: SP55-MT01), The National Science and Technology Development Agency (NSTDA).

Publications K. Wangkawong, S. Suntalelat, D. Tantraviwat, B. Inceesungvorn, Novel $CoTiO_3/Ag_3VO_4$ Composite: Synthesis, Characterization and Visible-light-driven Photocatalytic Activity, *Materials Letters* **133** (2014) 119.

K. Wangkawong, D. Tantraviwatb, S. Phanichphantc, B. Inceesungvorn, Band offsets of novel $CoTiO_3/Ag_3VO_4$ heterojunction measured by X-ray photoelectron spectroscopy, *Applied Surface Science* **324** (2015) 705.

Conference

Improvement of Photocatalytic Performance of Silver Vanadate Under Visible-Light Irradiation, Oral Presentation, Materials Challenges in Alternative and Renewable Energy 2015 (MCARE) by Korean Institute of Chemical Engineers, Korea, February 24-27 2015, Lotte Hotel, Jeju, Korea.

Composite nanoclay in polymer blending between Poly(lactic acid) (PLA) and poly(butylenes adipate-co-terephthalate) (PBAT) and characterize their properties, Poster presentation, The 8th conference on Science and Technology for youths, 2012, BITEC Bang-na ,Bangkok ,Thailand.

Experience

March-May 2011, training student, National Metal and Materials Technology Center (MTEC), National Science and Technology Development Agency (NSTDA), Pathumthani, Thailand.

2012, Visiting research student, "Improvement of Poly(lactic acid) Properties as Blends And Nanocomposites for Use in Bio-Packaging Applications", National Metal and Materials Technology Center (MTEC), National Science and Technology Development Agency (NSTDA), Pathumthani, Thailand.