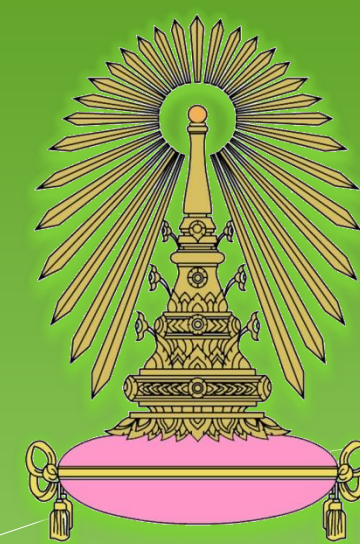


Synthetic Fuel

Chemical Technology

Chulalongkorn University

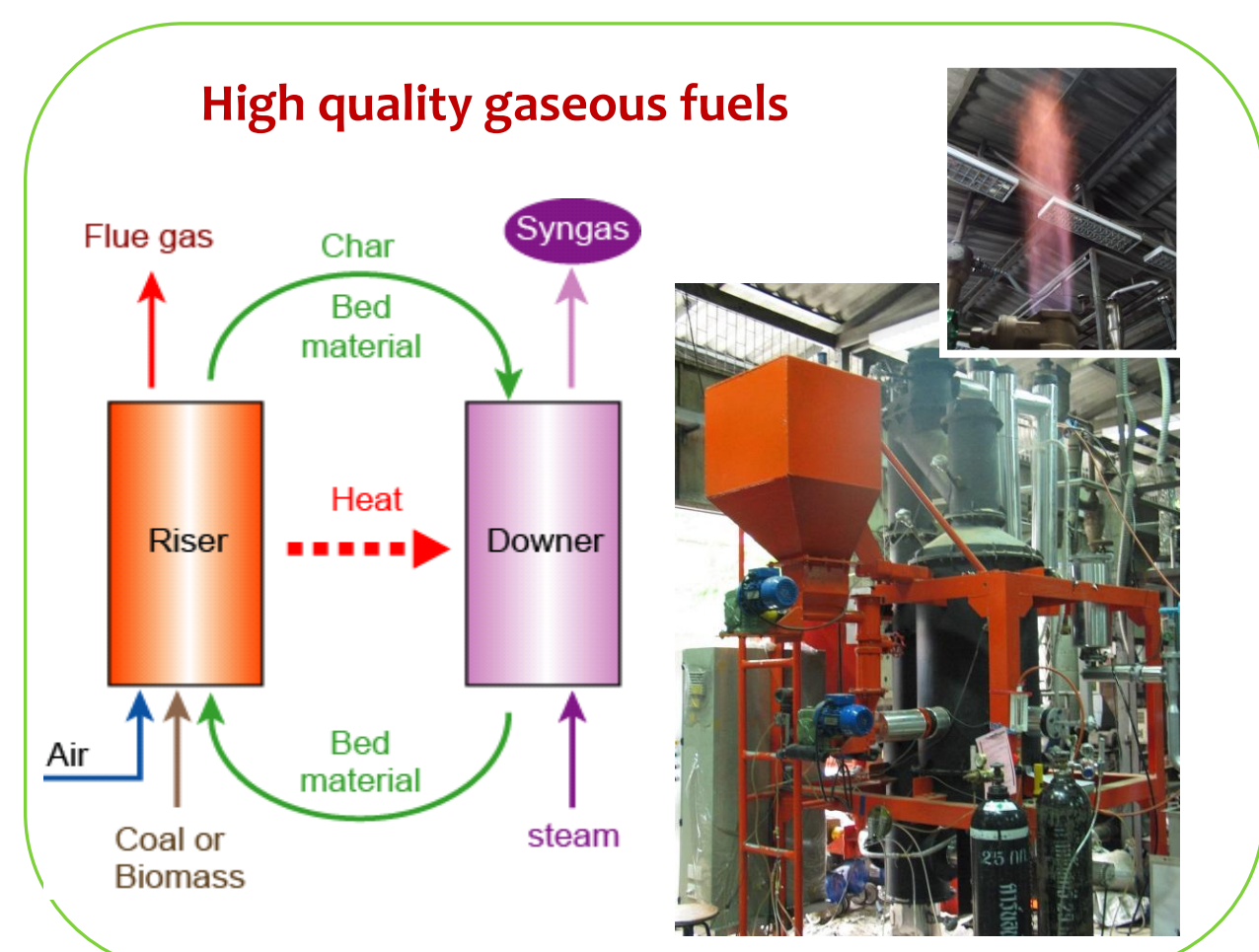
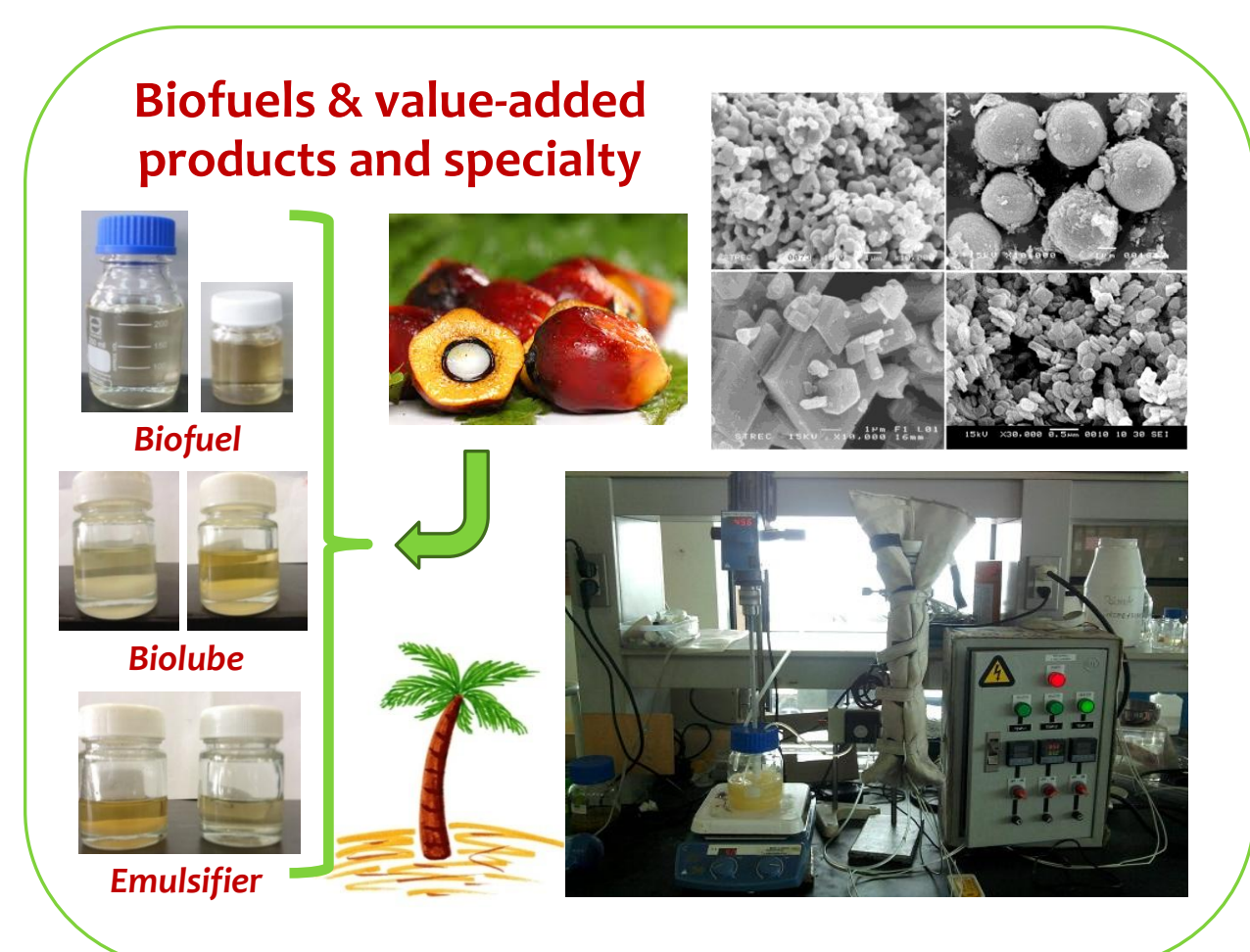


Project Goal :

- ❖ To develop research and technology for syntheses of green fuels and related value-added chemicals via environmentally benign processes
- ❖ To be a reference on synthetic fuels technology for the academic and industrial sectors of the country and to transfer knowledge and technology to society

Objectives :

- ❖ To develop knowledge in thermochemical technology for conversion of renewable feedstock to synthetic fuels.
- ❖ To develop environmentally benign processes for production of synthetic fuels and value-added chemicals.
- ❖ To develop human resources in synthetic fuels technology.



Rationale :

Synthetic fuels are of importance nowadays as a consequence of increasing energy demand, limited petroleum resources and environmental issues. Synthetic fuels can be produced from a number of potential renewable feedstock, such as wood, vegetable oil, agricultural waste, municipal waste, etc., each of which requires thermodynamically possible, economically feasible and environmentally acceptable processes for conversion to specific types of fuels. Several thermochemical conversion processes have been focused in this research group. The knowledge and technology gained from the academic research is extended to scale-up production.

Research Themes :

- ❖ Biomass & Waste to Energy: Solidification, Pyrolysis, Gasification
- ❖ Fuel upgrading: Deoxygenation, Desulfurization
- ❖ Synthesis fuels from synthesis gas over heterogeneous catalysts
- ❖ Synthesis of biofuels, biolube and value-added chemicals from vegetable oils
- ❖ Synthesis of bioethanol from lignocellulosic biomass by auto-hydrolysis

Equipments :

- ❖ X-ray diffractometer
- ❖ Bomb calorimeter
- ❖ Surface area / porosity analyzer
- ❖ Chemisorption analyzer
- ❖ CHN analyzer
- ❖ GC with mass spectrometry
- ❖ Simulation distillation GC (SDGC)
- ❖ High perform. liquid chromatography
- ❖ High pressure & temp reactors
- ❖ Pilot plant for fuel production
- ❖ Energy dispersive X-ray spectrometer

Collaborations :

- ❖ Japan: The University of Tokyo, Tokyo Institute of Technology, The University of Kitakyushu, Toyama University
- ❖ USA: Pennsylvania State University
- ❖ France: Institut National Polytechnique de Toulouse

Research Members :

- ❖ Prof. Dr. Pattarapan PRASASSARAKICH
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- ❖ Assoc. Prof. Dr. Somkiat NGAMPRASERTSITH
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