

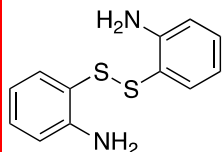
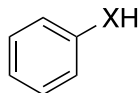
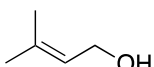
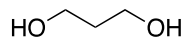
# Novel Catalytic Reaction System

Associate Professor Maki MINAKAWA

Illustration

## Raw material

Biomass,  
Low toxicity, or  
Halogen free



Exchange

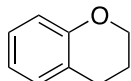
- H<sub>2</sub>O

## Catalytic Reaction

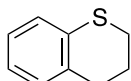
Atom economy  
Green chemistry

## Product

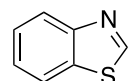
Building Blocks :  
Biologically active  
and Functional  
materials



Chroman



Thiochroman



Bezothazole

Organic synthesis for a sustainable society

Development of noble catalytic reaction system

Challenge to the synthesis of new functional chemicals

Our research:

Novel catalytic reaction systems for preparation of functional chemicals from biomass, low toxicity, inexpensive or halogen-free materials as starting materials.

Catalytic reaction should be atom economy and green chemistry. We believe that the development of novel reaction systems lead to realize organic chemical synthesis aimed at a sustainable society.

Appealing point:

We challenge for the construction of a new organic synthesis that is friendly to both the environment and human using a novel catalytic reaction systems.

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Research Interest: Organic chemistry,  
Catalytic Reaction

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