KASETSART UNIVERSITY
FACULTY OF SCIENCE
DEPARTMENT OF GENETICS

Genome Editing R&D at KU

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Plants in ongoing Genome Editing projects

Salt tolerant orchid

- **Plant:** Dendrobium orchid

- **Trait:** Salt tolerance trait

  ○ Testing effects of known genes

  ○ Discovering new genes

- **Status:** Obtained protocorms with increase salt tolerance

Salt tolerant sugar cane

Plant: Sugar cane

Trait: Salt tolerance trait

○ Discovering new genes

○ Checking for salt tolerance

Status: Obtaining calli with resistance to selectable marker

High production Andrographis

- **Plant:**   Andrographis

- **Trait:**   High Andrographolide production

  - ◯   Developing platform for editing

  - ◯   Analysing Andrographis biosynthesis pathway

- **Status:**   Testing varieties appropriated for tissue culture

Inbred cassava

- **Plant:** Cassava

- **Trait:** Haploid inducer

  - ○ Disrupting cenH3

  - ○ Introducing new versions of cenH3

- **Status:** Constructing vectors for editing

Non-browning pineapple

- **Plant:** Pineapple
- **Trait:** Non-browning
  - ○ Developing platform for editing
  - ○ Disrupting polyphenol oxidase
- **Status:** Constructing vectors for editing

N use efficiency cucumber

- **Plant:** Cucumber
- **Trait:** High nitrogen-use efficiency
  - ○ Editing genes involved with N-use efficiency
  - ○ Altering gene expression
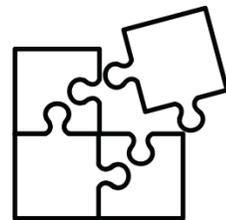- **Status:** Constructing vectors for editing

Perspectives

Potentials

-Orchid: on schedule to get GE plants in 3 years
-Many more plants and traits to benefit from this technique
-Fast, cheap, precise

Challenges

-Specie-specific problem: algae
-Tissue culture and protoplast problem

Future

To use this to full capacity to solve problems,

-public acceptance: Japan
-realistic and science-based regulation: Europe, Thailand?

Thank you for your time!

Please let me know if you have any questions.