

FUNCTIONAL AND APPLIED GENOMICS meets MEDICINAL PLANTS



Innovative plant breeding to improve plant secondary metabolites

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MOLECULAR TOOLBOX

✓ Development of **Molecular Breeding Markers** and **Metabolic Engineering**

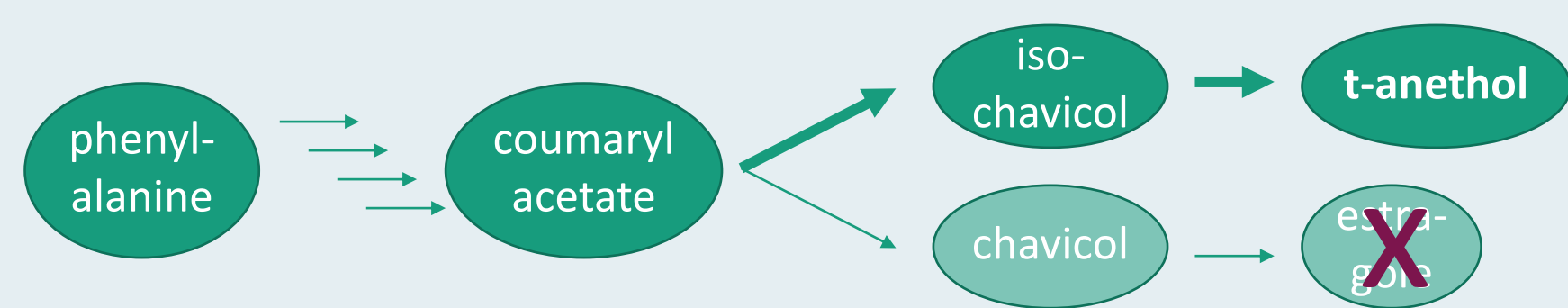
- gene identification and characterization using
 - genomics, transcriptomics
 - plant transformation
 - cell- and tissue cultures
- mutagenesis (TILLING, ecoTILLING, genome editing, ...)
- ingredient analysis (HPLC, GC-MS, ...)

➤ *knowledge-based breeding in collaboration with plant breeding companies*

FENNEL

➤ **Eliminating estragole** (carcinogenic)

- improving the pathway flux



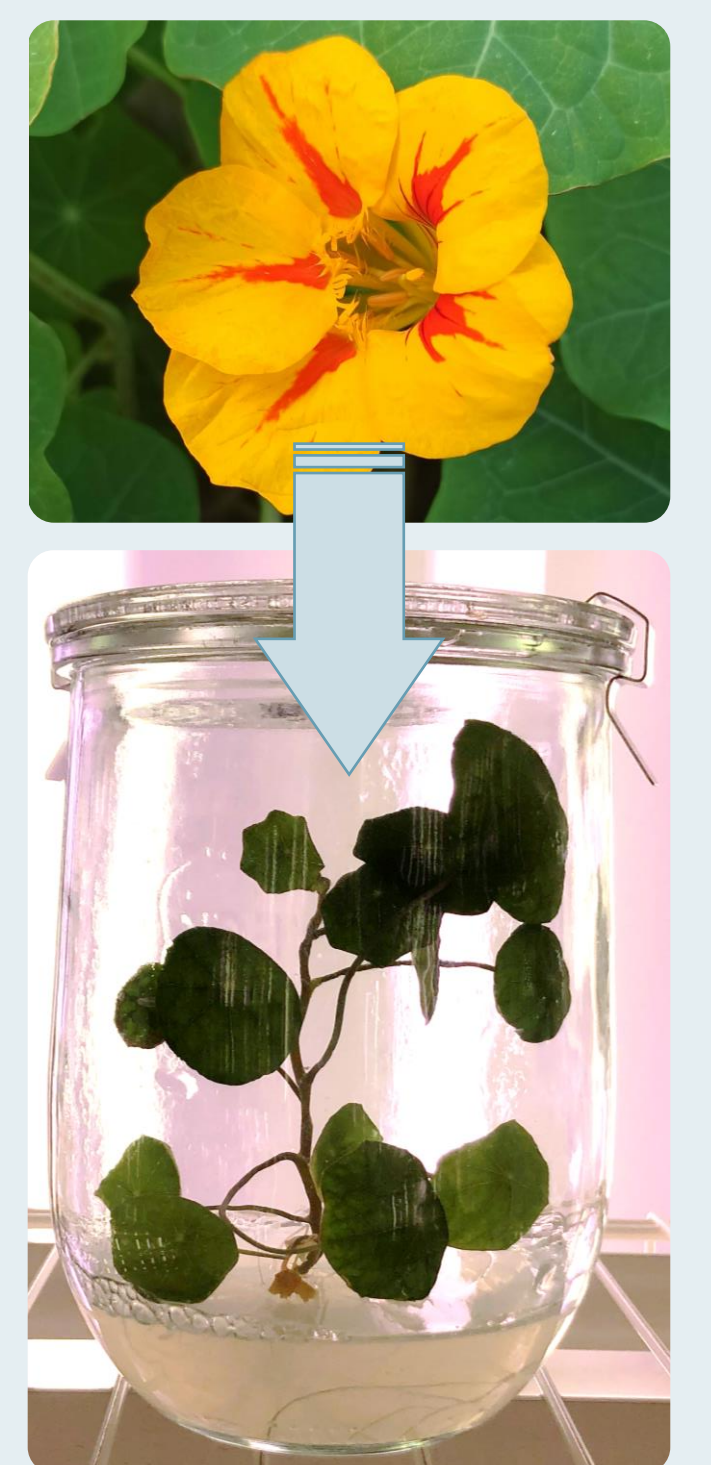
- innovative breeding via molecular markers and genome editing



INDIAN CRESS

➤ **Alternative source for antibiotics**

- identifying the biosynthesis pathway
- establishing cell- and tissue-culture
- improving yield of precursors by ecoTILLING and genome editing



ARNICA

➤ **Improving yield of active ingredients**

- identifying the biosynthesis pathway
- establishing cell- and tissue-culture
- developing molecular breeding markers



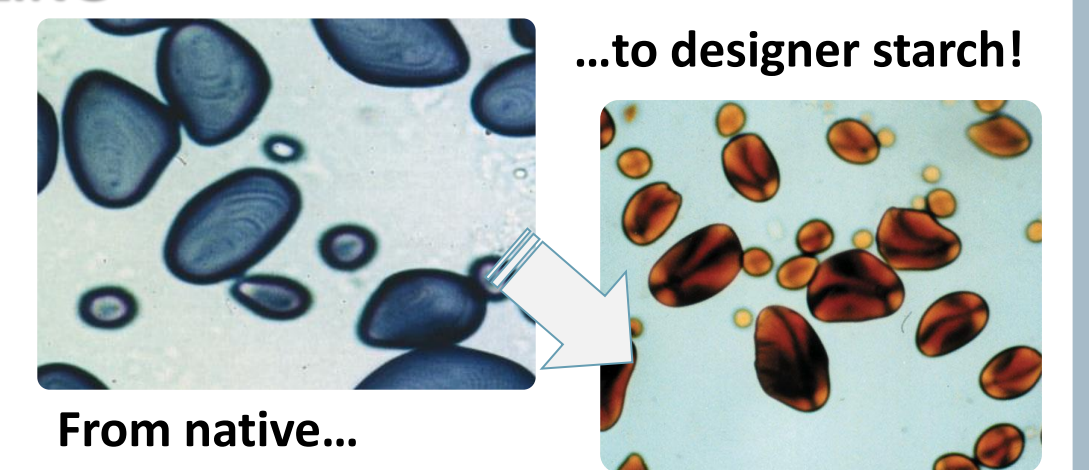
CASE STUDIES

- ✓ **dandelion** as alternative rubber crop
- ✓ high-amylopectin **potato** varieties
- ✓ project **Circular PhytoREVIER**

MARKER ASSISTED BREEDING



TILLING



ALONG THE VALUE CHAIN OF MEDICINAL PLANTS



Selected project partners



Interested?
Find more information here:

