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# Molecular Cloning of Differentially Expressed Genes in First Trap Leaf of *Dionaea muscipula* by Using Fluorescent Differential Display (FDD)

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## Objectives

To identify the genes involved in the development of first trap leaf, we applied a FDD method using mRNAs from leaf base, first trap leaf and flower tissue, respectively. We screened several genes that expressed specifically in first trap leaf.

## Materials and Methods

1. Materials

*Dionaea muscipula* Ellis: leaf base, first trap leaf and flower tissue

2. Methods

Fluorescent differential display, Northern blot, Sequence analysis

## Results and Discussion

Fluorescent differential display (FDD) is a method for identifying differentially expressed genes in eukaryotic cells. The mRNA FDD technology works by systematic amplification of the 3' terminal regions of mRNAs. This method involve the reverse transcription using anchored primers designed to bind 5' boundary of the poly A tails, followed by polymerase chain reaction (PCR) amplification with additional upstream primers of arbitrary sequences. The amplified cDNA subpopulations are separated by denaturing polyacrylamide electrophoresis. To identify the genes involved in the development of first trap leaf, we applied a FDD method using mRNAs from leaf base, first trap leaf and flower tissue, respectively. We screened several genes that expressed specifically in first trap leaf. Nucleotide sequence analysis of these genes revealed that these were protease inhibitor (PI), myo-inositol-1-phosphate synthase and lipocalin-type prostaglandin D synthase. Northern blot analysis showed that these genes were expressed specifically in first trap leaf (*in vivo* and *in vitro*). FDD could prove to be useful for simultaneous scanning of transcripts from multiple cDNA samples and faster selection of differentially expressed transcripts of interest.

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