

European Pharma Congress

August 25-27, 2015 Valencia, Spain

Plant microRNA transfer– A new dimension to herbal medicine

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Background: microRNAs (miRNAs) are small, endogenous RNA (21-25 nucleotides long) with an important role in gene expression regulation by targeting specific mRNAs in plants, animals and humans. Medicinal plants have been used throughout the human history, but even today, their mechanism of action is connected only to xenobiotic metabolism. To date, no miRNAs from marigold (*Calendula officinalis*), one of the best known medicinal plants, have been identified.

Material and Method: - Certified plant material (*Calendulae flos*) and standard growth conditions

- Plant small RNA isolation and extraction
- Sequencing data analysis and plant miRNA identification
- Feeding of animals
- Extraction of total plant RNA from liver, spleen, kidney, and blood
- Detection and quantification of plant miRNA existent in the animal body, that survives digestion

Results: Several studies have demonstrated the fact that plant miRNA is taken up by mammalian cells and change its gene expression profile. After the quantification of miRNA from *Calendulae flos*, the transfer of plant miRNA in the animal body will be analysed as well as their induced influence at a gene expression level.

Conclusions: The knowledge of cross-kingdom miRNA effects will lead to a better understanding of the relationship between plant exogenous genetic material and the changes in mammal upon oral ingestion. This research could contribute to develop a new insight of the molecular mechanism for the plant members of Asteraceae family, known for its great medicinal value.

Biography

Maria Sala-Cîrtog is a second year PhD student at the University of Medicine and Pharmacy “Victor Babes”, Timisoara (Romania) where she works as an Assistant professor in the Department of Pharmacology. She is also a Pharmacy resident at the Clinical Municipal Hospital, Timisoara. In the last year, she received a grant from the Ministry of European Funds.

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