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Identification of potentially conserved microRNAs in *Calendula officinalis* using homology-based approaches

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Background: MicroRNAs (miRNAs) are a group of small, noncoding endogenous RNA (21-25 nucleotides long) with an important role in gene expression regulation by targeting specific mRNAs in plants, animals and humans. To date, no miRNAs from marigold (*Calendula officinalis*), one of the best known medicinal plants, have been identified. This may be due to the lack of genome data regarding *Calendula off.* because the majority of available miRNA identification tools require a reference such as EST database or genomic sequence to discover novel miRNAs.

Materials & Methods: Certified plant material (*Calendulae flos*) and standard growth conditions were used. Plant small RNA isolation and extraction and Sequencing data analysis and plant miRNA identification were carried out.

Results: The cDNA libraries of two tissues from *Calendula* (petals and inflorescence) were prepared and small RNA-seq was conducted according to Illumina's protocols. To identify potential miRNAs, previously known miRNAs from *Arabidopsis thaliana*, *Ricinus communis*, *Linum usitatissimum* and *Physcomitrella patens* were downloaded from MirBase. The reference set miRNAs were compared against *Calendula* small RNA sequences using homology approaches. A total of 3 miRNAs, with 0 mismatches, (*mir166a*, *lus-mir166e*, *ppt-mir894* and *ath-mir8175*), were identified based on their sequence complementarities.

Conclusion: The potentially conserved miRNAs from *Calendula* were identified only in the inflorescence, which is the part used for medicinal purposes. This could lead to a better understanding of the relationship between plant exogenous genetic material and the changes in mammal upon oral ingestion.

Biography

Maria Sala-Cirtog is a third 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 Biochemistry and Pharmacology. She is also a Pharmacy resident at the Clinical Municipal Hospital, Timisoara. Last year, she received a grant from the Ministry of European Funds.

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