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### **Proteomic-based approach for the characterization of maize protein**

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Prolamins are the major storage proteins in cereal grain such as maize where more than 60% of the total endosperm protein belong to zein. Based on their molecular weight and solubility, zeins are classified into four different zein classes ( $\alpha$ ,  $\beta$ ,  $\gamma$ ,  $\delta$ ). However, the major components express in literature are  $\alpha$  and  $\beta$ -zeins. Being a natural compound, zeins has the advantage of being used in different fields, such as: industrial, food and pharmaceutical. Moreover, recent studies showed that zein had a good controlled-release characteristic in drug delivery systems such as films, micro-encapsulation, gels as well as release of biocompatible anticancer and anti-coagulant drugs. The most defining characteristic of zein consist in their insolubility in water and the high solubility in alcoholic solutions, such as 65% ethanol to 95% ethanol. Due to the vast genetic polymorphism of the starting material and to the extraction conditions, analysis of their compositions requires a combination of the latest and modern analytical methods such as SDS-PAGE, 2D gel electrophoresis and mass spectrometry.

Therefore, we report here a new process consisting in successive grinding and sieving of corn seeds to obtain different maize flours, with different chemical compositions and protein contents based on particle hardness. The zein extraction was also investigated using 65-95% aqueous ethanol under ultrasound conditions. Besides, the extracted zein and the commercial zein protein were used for different conjugates synthesis. We have applied proteomic based approaches such as MALDI ToF mass spectrometry, SDS-PAGE electrophoresis and FT-IR spectroscopy to characterize the extracted zein.

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### **Biography:**

Laura Darie-Ion has completed her PhD in 2015 at Chemistry Department, Alexandru Ioan Cuza University of Iasi, Romania and currently, she is postdoctoral researcher at the same University. During the PhD and postdoctoral studies, she has completed several research internships at University of Konstanz, Germany and published more than 13 papers in reputed international journals.

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