

4th International  
Colloids  
Conference

# SURFACE DESIGN AND ENGINEERING

15-18 June 2014  
Madrid, Spain

Dear Delegates,

On behalf of the Organizing Committee, it is our pleasure to welcome each of you to the historic and beautiful city of Madrid for the Fourth International Colloids Conference, "Surface Design and Engineering." Previous conferences were held in Amsterdam, and last year's conference in Xiamen, China. The Colloids Conferences are associated with the *Journal of Colloid and Interface Science [JCIS]*, the oldest and most respected journal in colloid science.

This year's conference features an interesting program of plenary, keynote, invited and contributed presentations and posters at the frontiers of designed and characterized surfaces having important present and future applications. Allow us to express our appreciation to all of the speakers and poster presenters for their vital contributions to this conference. We are pleased by the quality and quantity of abstracts received. The topics of the presentations include:

- Emulsions
- Interfaces in biology and food
- Patterned surfaces
- Photonics at interfaces
- Polymer surfaces and interfaces
- Self-assembled structures
- Sensors
- Structured particles and nanoparticles

Let us take this opportunity to thank the Editors of *JCIS*, Professors Teresa Bandoz, , Martin Malmsten, Gao-Qing (Max) Lu, Darsh Wasan, and Dongyuan Zhao for their strong support in sustaining the reputation of *JCIS* and in organizing this conference series. Our thanks likewise to the staff of Elsevier, Rob van Daalen, Laura Copeland, Neha Aggarwal, and Irene Cyrilraj for their guidance and hard work. To the local organizing committee, Professors Begoña Ferrari, Elena Junquera, and Enrique López-Cabarcos, we express our gratitude for their tireless effort and dedication in planning and organizing this conference.

Our thanks to the sponsors of this conference for their interest and generous support.

Again, welcome! We wish you a very enjoyable stay in Madrid and a stimulating and illuminating conference.

**Professors Manuel Arturo López-Quintela, Julian Eastoe and Arthur Hubbard**

[P1.05]

**Preparation antidiabetic food gels based on the gelatin and helianthus tuberosus**

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Structured systems occupy a special place among foods. For their obtaining use as quickly structuring polymers such as gelatin, agar, starch, carrageenan. Along with them, many fruit and berry systems also have the ability to structuring, on this basis of their use in the preparation of confectionery: jelly, jam, pasta, etc. The advantage of using them is due to the abundance of vitamins and other beneficial ingredients to the body resistant to the effects of conservants. However, when they are used for special products primarily pay attention to the content of sucrose. In particular, to obtain confectionery antidiabetic destination preferred fruit containing fructose as carbohydrate. In connection with this research objective was to obtain food gels based on gelatin-helianthus tuberosus (Jerusalem artichoke) and sweeteners.

First by IR spectroscopy, viscometry and determine the strength of the Weiler-Rebinder studied the effect of plant tubers inulin containing helianthus tuberosus on structure of gelatin. Found that the administration of helianthus tuberosus pulp leads to an increase in the strength of gelatin. It is shown that the main type of interactions in structuring systems are electrostatic interactions between the carboxyl and amino groups of proteins and gelatin and helianthus tuberosus, H-bond between the OH, COOH-groups of pectin's and COOH-groups of amino acids of gelatin macromolecules stabilized by hydrophobic interactions between their non-polar areas. Structuring effect on pulp of helianthus tuberosus to gelatin grounded high content of proteins, carbohydrates, pectin's,  $\text{Ca}^{2+}$ ,  $\text{Mg}^{2+}$ ,  $\text{Fe}^{3+}$  metal ions, which are capable of exerting on the pectin molecules and proteins cross linking action.

The effect of the sweetener - sorbitol on structuring a mixture of gelatin and helianthus tuberosus pulp. Was found that the introduction into the system of sorbitol leads to increased strength of the system, which due to the formation of hydrogen bonds in the system by incorporating the hydroxyl group's of hexaatomic alcohol in the gel-forming process.

Keywords: Helianthus tuberosus, Gelatin, Inulin, Pectin