Volume 5, Issue 1, 2015, 902 **ISSN 2069-5837**

Biointerface Research in Applied Chemistry

www.BiointerfaceResearch.com

Editorial **Open Access Journal**

Published on-line: 15.02.2015

Iberoamerican research in bioapplications in colloids and surface science

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1. EDITORIAL

"Colloid chemistry has never been discussed so frequently as it is to-day. (…) Certain it is that no branch of applied chemistry to-day can be declared free from colloid problems, and that the chemistry of to-morrow will be colloid chemistry, pure and applied". These premonitory words belong to William Clayton in an article titled "The need for research in colloid chemistry"* and clearly express what we now, ninety years after, can testify: colloids and surface science seems to be an endless research area where applications to daily life are, sometimes, a collateral result or, in many cases, the main purpose. For that reason, research groups focused in these soft matter systems frequently meet professionals from different disciplines, forming thus what is probably one of the major characteristics of the current science: inter and multidisciplinary approach. The collaborative nature of those teams is well represented in Iberoamerican groups, where high level research has been conducted covering a wide span of interest: from fundamental aspects to applications in food, medicine, oil recovery, nanomaterials, drug delivery, ecology, etc. The aim of this special issue is to emphasize some recent advances in research in bio-applications in colloids and surface science in Iberoamerican countries. The contribution of Sifontes *et al*. studies the effect of ent-Kaurane diterpenoid glycoside molecules as soft templates on the synthesis of anatase titanium dioxide. The protocol of synthesis which employs biological materials is easy and inexpensive and avoids the disadvantages which are usually present with the use of surfactants molecules. Briceño *et al*. synthesized water-soluble rhamnose-coated mixed manganese-cobalt ferrite nanoparticles specifically designed as magnetic fluid hyperthermia heat mediators. Alvarado *et al*. focused on determining the non-intrinsic contribution to partial molar volume of BSA, HSA and OVA as globular protein model at infinite dilution in free salt water at 298.15 K using a refractometry strategy and the classical densitometry method. They also found that the electric deformability values for each protein was very low compared to the values reported for other molecular systems of minor size. Their results suggest that the vibrational polarizability is very small in magnitude and has a minor contribution to the non-intrinsic molar volume of each globular protein. The contribution of Bravo *et al*. on a novel class of ion-pair surfactants prepared through the neutralization of ethanolamine in mild reaction conditions is presented. In comparison with classical anionic surfactants having inorganic counterions, terbutylammonium alkylcarboxylates and ethanolammonium alkylcarboxylates exhibit a higher ability to aggregate in aqueous solution, demonstrating their potential applicability as surfactant. In short, synthesis, characterization, and theoretical aspects of materials based on biocomponents are here shown as a glance of the ongoing research in Iberoamerica.

*W. Clayton. Nature 108, 2722, 586.