Carlos M. Corvalan, J Biotechnol Biomater 2012, 2:6
http://dx.doi.org/10.4172/2155-952X.S1.018

OMICS Group Conferences
Accelerating Scientific Discovery

3rd World Congress on
Biotechnology

September 13-15, 2012 Hyderabad International Convention Centre, Hyderabad, India

Interfacial phenomena in food materials

Carlos M. Corvalan
Department of Food Science, Purdue University, USA

The Transport Phenomena in Food Materials laboratory at Purdue University seeks to establish the fundamental relationships between the structure of food materials and their mechanical and functional properties as influenced by processing, composition, and environmental conditions. A current research thrust area of this laboratory: Interfacial Phenomena in Foods seeks to establish a detailed understanding of interfacial mechanisms that affect the transport of mass and heat in food matrices, particularly in terms of developing enhanced food materials and processes. Two specific examples of research within this thrust area are: a) precise control of particle size during processing (e.g. emulsification, spray drying, microencapsulation, and nanomaterials) and storage (e.g. microsintering and coalescence) via modulation of dynamic interfacial conditions; and b) identifying novel capillary and interfacial mechanisms for enhancing drying rates in porous food matrices. Advances in this area enabled by insights achieved through combinations of experimental tools (such as high-speed visualization and laser Doppler velocimetry) and recent computational modeling tools (such as first-principles approaches and direct numerical simulations) will be presented.

Biography

Carlos M. Corvalan is Associate Professor at the Purdue University Department of Food Science, and a member of the Faculty of the Purdue Biological Engineering Department. He has published over fifty research papers in a variety of fields including biopolymers, food rheology, food processing, microencapsulation, nanomaterials and transport phenomena. His recent work focuses on the the effect of surface active species on industrial and biological free-surface flows of complex fluids in multidisciplinary projects supported by U.S. National Aeronautics and Space Administration (NASA), U.S. Department of Agriculture (USDA) and U.S. Army Research Office (ARO).

corvalac@purdue.edu