OMICS Group Conferences
Accelerating Scientific Discovery

2nd International Conference and Exhibition on
Materials Science & Engineering

October 07-09, 2013 Hampton Inn Tropicana, Las Vegas, NV, USA

# Evaluation of the bioactivity of mesoporous bioactive glass

**Hassane Oudadesse[1], N. Letaief[1,2], A. Lucas-Girot[1] and R. Dorbez-Srid[2]**
[1]University of Rennes 1, France
[2]University of Manstire, Tunisia

Bioactive glass composed of 85% $SiO_2$, 10% CaO, and 5% $P_2O_5$ was prepared with the goal to obtain mesoporous biomaterial for use in bone surgery. Different surfactants were employed in this study. Porosity was carefully investigated to obtain high ordered pores and to permit the vectorization of the therapeutic molecules in the surrounding tissues. Several physicochemical methods were employed to study the structure by using wide angle X-ray diffraction (WAXRD) analysis and small angle X-ray diffraction (SAXRD) analysis coupled to neutron diffraction. The morphology using scanning electron microscopy (SEM) and the surface area were determined using the Bareett-Emmett-Teller (BET) method, while pore volume and pore size distribution were determined from the isotherm desorption branch by the Barrett-Joyner-Halanda (BJH) method. The ionic exchanges between glass biomaterial and synthetic physiological liquid after soaking at different periods by using ICP-OES. Silicon was analyzed to evaluate the kinetic of the dissolution of glass when calcium and phosphorous were analyzed to evaluate de kinetic of the formation of calcium phosphate.

## Biography

Hassane Oudadesse graduated from the University Blaise Pascal of Clermont-Ferrand, France. He obtained his Ph.D. in 1989. He worked as Associate Professor and obtained his HDR (Habilitation à Diriger des Recherches) in 1998. Since 2001, he works in the University of Rennes 1 as Full Professor in the "Sciences Chimiques de Rennes", UMR CNRS 6226. His works concern the use of physicochemical methods for development in biomedical field and conception, synthesis and physicochemical studies of new biomaterials for applications in orthopaedic surgery. His research interests include biocompatibility, kinetic of bioactivity, kinetic of bio consolidation in the interface bone - implants, cells enhancement and other properties of biomaterials. He is author of more than 100 papers published in international journals and about 60 international conferences. He is a head of the research unit on Biomaterials since 2001, Vice President of University of Rennes 1 (2008-2012), human resources, Director of Master 2 Solid State Chemistry and Materials since 2006. He was the President of the Chemical Department from 2002 to 2004 and the President of the specialists commission CNU 33 (Materials Chemistry) from 2003 to 2008.

hassane.oudadesse@univ-rennes1.fr