Title
Alginate: a versatile biopolymer for functional advanced materials for catalytic applications

Abstract
The development of new materials derived from renewable feedstocks is becoming highly attractive and, in particular, a strong attention has been recently paid to the use of natural polysaccharides as supports and catalysts in heterogeneous systems. In this context, alginates, natural polymers extracted from brown algae, are emerging as promising candidates because of their natural abundance, cheapness and suitable physicochemical properties. Alginates are linear copolymers, constituted by sequences of (1 → 4) linked β-D-mannuronate and α-L-guluronate residues, arranged in an irregular blockwise pattern, and they bear a carboxylic group in each monomeric unit (5.6 mmol/g). Their ability, in an aqueous medium, to form gels under acidic conditions, or in the presence of multivalent ions, such as Ca2+ or Cu2+ for example, allows developing highly porous supports, either for metal catalysts or organocatalysts. This lecture will give several examples of the use of alginate as supports or templates for catalysts synthesis as well as their applications.