

A short review on cockle shells as biomaterials in the context of bone scaffold fabrication

ABSTRACT

Cockle shells contribute to a large amount of waste product in South East Asia due to the extensive culturing of the mollusc for consumption. These nacreous materials in the recent years have been gaining wider popularity due to its potential use as biomaterials. As shown in various studies, cockle shell powder consists of 95-98% aragonite form of calcium carbonate (CaCO_3). The calcium carbonate obtained from cockle shells are easily converted into nanoparticles, which have shown encouraging results in bone tissue grafting. With the recent advancement in bone tissue engineering and development of a newer generation of biomaterial based bone scaffolds, the cockle shell powder has promising applications in the near future to be used in the formulation of bone grafting materials. In this review, the use of biomaterials in bone tissue grafting and nacreous materials as potential biomaterials with a focus on the cockle shell and its recent advancement as the main component in the formulation of a nanobiocomposite bone scaffold is discussed.

Keyword: Biomaterial; Bone tissue grafting; Cockle shell