

Abstract

As is well established, different particular structures and characteristics are required for the biomaterials applied for various human body replacements. This depends essentially on the kind and function of the tissue to be replaced along with the nature of surrounding environment. There are many urgent properties for any material utilized in human body fluid such as mechanical performance, wear resistance, corrosion behavior, and biocompatibility. Therefore, it is very imperative to develop new materials for biomedical applications with higher bio-performance. Different engineering materials, like metals, ceramics, polymers, and composites, were presented as effective alternatives to various damaged hard tissues. However, some drawbacks are still available during using these materials as biomaterials. Subsequently, it became very vital to develop new kinds of materials to meet diverse challenges. For this purpose, several types of nanocomposites (NCs) with outstanding characteristics have been produced as advanced materials for functional biomedical field. In this chapter, much interest has been made on graphene nanocomposites (GNCs) as they can offer higher functional properties such as specific strength, wear resistance, corrosion behavior, and biocompatibility.