

Melting and Making Zn-Based Alloys and Examine Their Biodegradable and Biocompatible Properties

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Abstract : Natural Zinc has many significant biological functions, including developments and sustainable of bones and wound healing. Metallic zinc has recently been explored as potential biomaterials that have preferable biodegradable, biocompatible, and mechanical properties. Pure metal zinc has a preferable physical and mechanical properties for biodegradable and biocompatible applications such as density and modulus of elasticity. The aim of the research is to make different Zn-based metallic alloys and test them effectively to be used as biocompatible and biodegradable materials in the field biomedical application. Microstructure study of the as-cast alloys will be examined using SEM (scanning electron microscope) followed by X-ray diffraction investigated so as to evaluate phase constitution of the designed alloys. After that, immersion test and electrochemical test will be applied to the designed alloys so as to study bio corrosion behaviour of the proposed alloys. Finally, in vitro cytocompatibility well conducted to study biocompatibility of the made alloys.

Keywords : Zn-based alloys, biodegradable and biocompatible materials, cytotoxicity test, neutron synchrotron imaging

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