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**PREPARATION AND CHARACTERIZATION OF NATURAL NANO HYDROXYAPATITE FROM
EGGSHELL AND SEASHELL AND ITS EFFECT ON BONE HEALING**

ABSTRACT:

The Objectives of the present study were undertaken to prepared hydroxyapatite powder from eggshell and seashell and convert them in Nano size. Hydroxyapatite (HA) is a biomaterial with osteoconductive properties and is prepared by the precipitation method. The properties of HA can be enhanced when the material is synthesized in the Nanoscale range to use in the mandibular bone of the rabbit to examine the influence of (HA) on bone healing. The eggshell and seashell were cleaned, and the phosphoric acid was added. The product inserts in the oven then calcined at 700°C for 1 hour in the muffled furnace to evaporate CO₂ and to get the white crystalline powder, which indicated the presence of HA, this powder was converting to nanoparticle by attraction method. The product was applied in the groove of the rabbit's mandibular bone after surgical procedures to show the bone healing in histological examination. The results of IR Spectroscopy for the eggshell and seashell hydroxyapatite powder showed that the two compounds showed the same IR spectrum and the location of bands is approximately the same in the two compounds compared with the commercial hydroxyapatite powder by using FT-IR spectroscopy after dried at 100°C. Histologically show that eggshell and seashell hydroxyapatite powder accelerated the bone healing in the mandibular bone of the rabbits. It can be concluded that, hydroxyapatite nanoparticles can successfully be produced by chemical precipitation techniques from eggshells and seashells with a phosphoric acid solution. Eggshell and seashell hydroxyapatite powder was used successfully in bone healing.