

# Electro-active scaffolds designed from biocompatible Hap-KNN ceramics for bone grafting applications

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## Objective

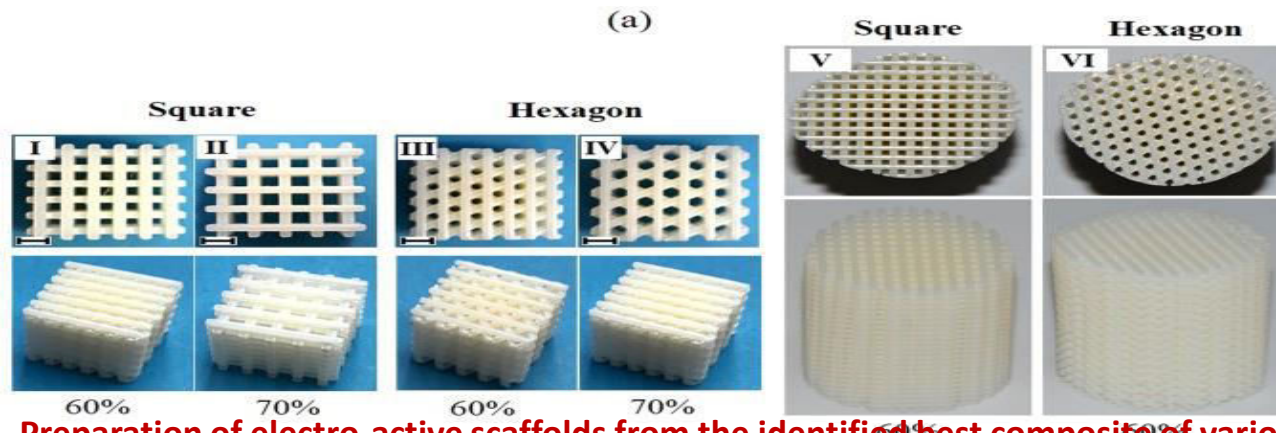
- 1. Fabrication of the ceramic composite (HAP and KNN) with different compositions. 2. Identification of the best composite with excellent Mechanical, Electrical and Biological properties. 3. Fabricate the scaffolds from the identified composite and test its Mechanical and Biological properties. 4. In-vivo testing of the scaffolds using rat model for bio medical applications.

## Highlights

The Scaffolds are designed from electroactive, biocompatible and bioactive ceramics that are capable of harnessing the electrical stimulations for rapid fracture healing. The longer exposure times during electrical stimulations applied to patients will be reduced significantly leading to lessening the medical trauma. Synthetically prepared for mass manufacturing, lessening the need to depend on donors as in the case of autografts. The scaffolds are yet to dominate the Indian biomedical market, with only a handful of global ventures supplying such products.

The successful completion of this project would help to develop these implants indigenously.

Deliverables: Prototypes of the items shown below.



Preparation of electro-active scaffolds from the identified best composite of various porosities and shapes. The preliminary in vitro biological properties and mechanical properties will be tested. These scaffolds will be finally tested in rat/mice models for obtaining permission for clinical trials.

