P.SADIQBASHA

Profession is one of the identities of a person. Teaching is a profession beyond a mere identity that helps one to make their students life as bright along with the welfare of our country. I hope that I could fully be satisfied by this profession. Since I like teaching very much, I could dedicate myself to it. Also, to utilize my research skills in a competitive environment that would yield a steady professional growth and be resourceful to the organization. And the place suitable to keep research make me pleasure. With my appreciable academic background and passion towards research coupled with practical exposure to research.

I am successfully completed one-month summer internship **SSVIP-2017** and **SSVIP-2018, Kalasalingam Academy of Research and Education**. Currently studying on M.Phil. at Periyar University, Salem – 7.

RESEARCH PROPOSAL

Bio-waste materials from natural sources are significant assets for extraction and recuperation of important mixes. Change of these waste materials into significant materials requires explicit methods and approaches. Most of the bio ceramics are particularly calcium phosphate-based materials. Hydroxyapatite comprising combination scaffolds fabricated for bone tissue engineering contain has extensively investigated in recent years. so, at this proposal we can talk about hydroxyapatite.

Hydroxyapatite is one of the calcium phosphate ceramics with calcium and phosphate ratio 1.67 and chemical formula $Ca_{10}(PO_4)_6OH_2$. Hydroxyapatite material indicate excellent bioactivity, great biocompatibility, and excellent osteo-conduction properties. Hydroxyapatite gives an osteoconductive surface for new bone growth, attaching the implantation and transferring load to the skeleton, helping to prevent bone atrophy. Hydroxyapatite produced using several techniques have been progressed such as polymer assisted, solid state reaction, hydrothermal synthesis, sol-gel procedure, wet precipitation, multiple emulsion technique and heat treatment method.

Hydrothermal synthesis in calcination process is one of the most used method from all of above. Hydroxyapatite is separated from a natural source by fat removing and deproteinization procedure followed by high-temperature calcination of animal bone, fish scales, bio-wastes, eggshells and etc. we can synthesis hydroxyapatite from caprine bone followed by calcination process. Conversion of these waste materials into useful materials great help for nature and this process fully green synthesis.

Additionally, replacement of the ions and doping transition elements into the solid matrix of hydroxyapatite have also flagged the way towards the applications of hydroxyapatite materials in the field of medical and pharmacological sciences. Lithium doped hydroxyapatite nanocomposite of low dielectric constant is also beneficial for therapeutic for bone fractures as regards to its precursor. At deal with minerals substituted hydroxyapatite, the biological actions like skeletal metabolism, stress relief, bone resorption are facilitated. Minerals substituted hydroxyapatite increasing significance due to their anti-inflammatory, antitumor, antiresorptive, antiosteoporosis, and immune suppressive character.

Additionally, Composite of biopolymer with hydroxyapatite ingredients that have outstanding properties such as biocompatibility, biodegradation, and mechanical strength. The natural biodegradable polymers within the living body, but some degradation debris is present in tissue for a long time.

Hence, biomaterials should have the following significant requirements such as better degradation and absorption properties compared to the therapeutic rate of bone tissues, nontoxic and non-immunogenic decomposition products and materials should have significant processing ability and outstanding mechanical strength to be biocompatible with human tissues. So, we can synthesis different composition biodegradable polymers with minerals substituted hydroxyapatite scaffolds and analysis their application studies.