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# AN ASSESSMENT OF ALGINATE COMPOSITES FOR BONE TISSUE ENGINEERING

**Dr Ajay Pant***

* Department of Medical,
Teerthanker Mahaveer University, Moradabad, Uttar Pradesh, INDIA
Email id: drajay.pant@gmail.com
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## ABSTRACT

*Immune system is a complex and hierarchical structure made up mostly of nano hydroxyapatite and collagen. There have been many efforts to create artificial bone to replace auto graft and allograft therapy. Tissue engineering is a potential method for addressing a variety of problems, and it may also be used to create artificial bone using materials such as polymer, ceramics, metals, cells, and growth hormones. Polymer-ceramic composites are the best at mimicking bone's inherent activities. Because of its biocompatibility and gel-forming characteristics, alginate, an anionic polymer with many biomedical uses, is gaining popularity in bone tissue engineering. Too far, many composites have been explored, including alginate-polymer, alginate-protein alginate-ceramic, alginate-biogas, alginate-bio silica, alginate-bone morphogenetic protein-2, and RGD peptides composite. Pore size distribution, mechanical strength, cell adhesion, biocompatibility, proliferation and differentiation, alkaline phosphatase rise, good mineralization, and differentiation potential are all improved in these alginate composites. As a result, alginate-based composite biomaterials for bone tissue regeneration will prove promising. The purpose of this study is to provide a comprehensive overview of alginate manufacture and its uses in bone tissue engineering.*

**KEYWORDS:** *Alginate, Bone Tissue, Chitosan, Hydroxyapatite, Immune System.*

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