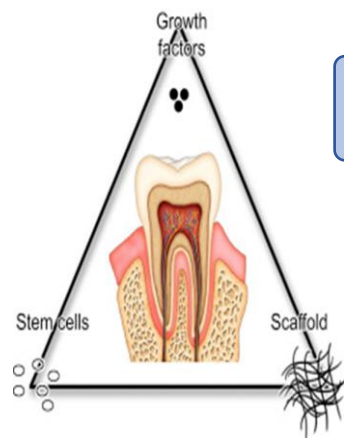
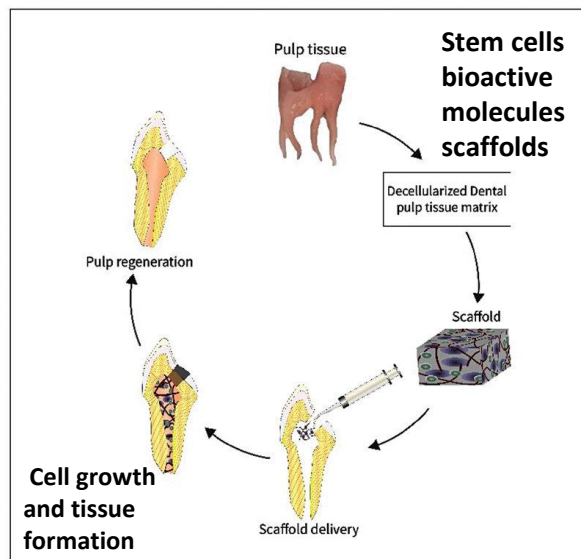


NANO MATERIAL BASED SCAFFOLDS FOR DENTAL PULP REGENERATION: A PROMISING APPROACH

INTRODUCTION: REGENERATIVE ENDODONTIC TREATMENT IS A PROCEDURE TO REPLACE DAMAGED TOOTH TISSUE WITH NEW TISSUE.



METHODS OF SCAFFOLD FABRICATION

Electrospinning

Supercritical fluid gassing

3D bio printing

Self Assembly

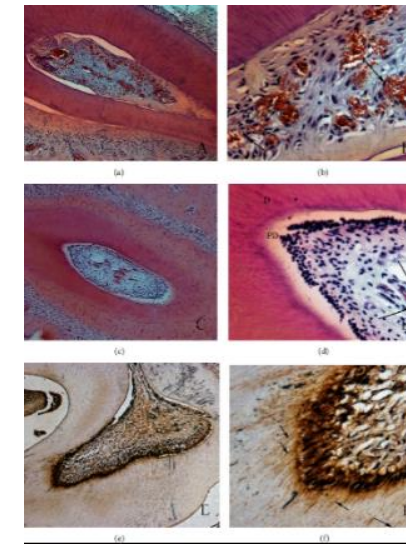
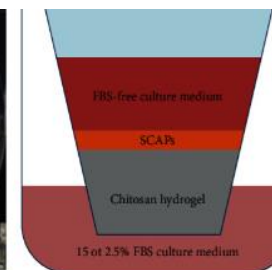
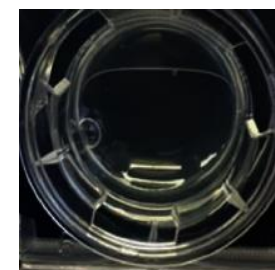
CLASSIFICATION

NATURAL

• Collagen, chitosan, cellulose, dextran, alginate

SYNTHETIC

• Hydroxyapatite, hydrogel, polycaprolactone, polylactic acid, polyglycolic acid.



photomicrographs illustrating the newly formed connective tissue inside the root canal , with young blood vessels. It is similar to healthy dental pulp

PROPERTIES OF SCAFFOLD

BIOLOGICAL

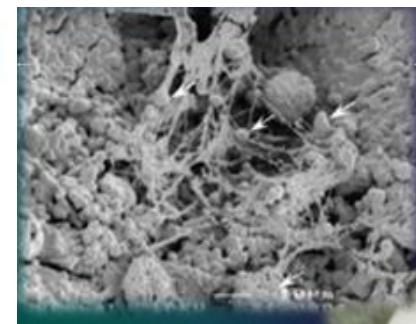
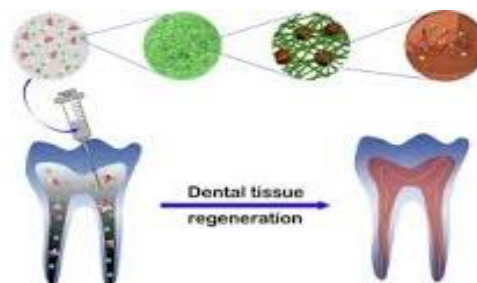
- Biocompatibility
- Biodegradability
- Cell matrix interaction
- Supporting vascularization

PHYSICAL

- Viscoelasticity
- Mechanical Strength
- Tuneable properties

STRUCTURAL

- High porosity
- Injectability
- Pore interconnectivity



CONCLUSION

Nano material based scaffolds hold promise for dental pulp regeneration. The biomimetic characteristics of nano materials promote cell growth and stimulate tissue regeneration. Future research should focus on scaffold design, bioactive molecule incorporation restoring dental pulp vitality and function.

REFERENCE

