



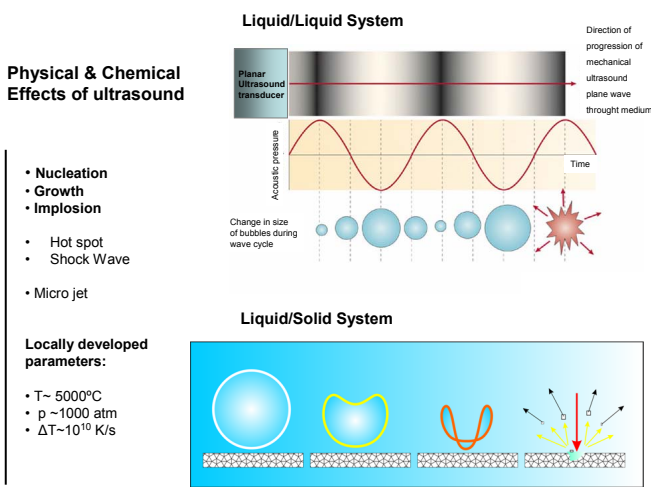
APPLICATION OF SONOCHEMISTRY FOR FORMATION OF NANOSIZED SILVER AND SILVER/HYDROXYAPATITE COMPOSITE PARTICLES

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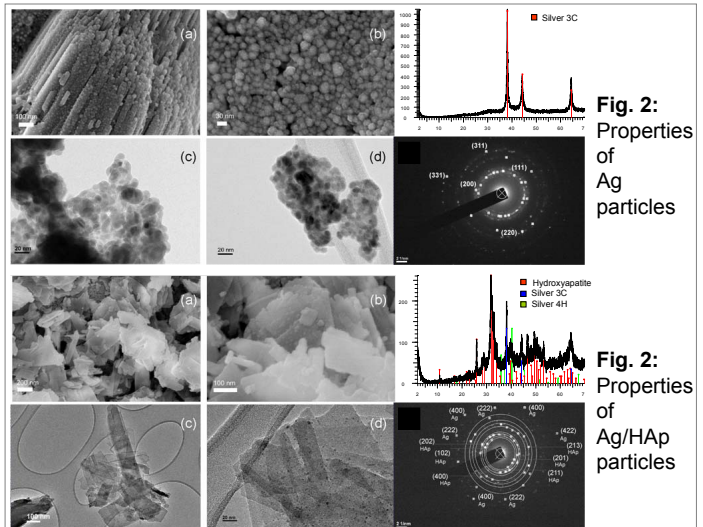
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Sonochemical synthesis



Results



Noble metals and hydroxyapatite properties

- Nanosized silver is well-known antibacterial agent.
- Hydroxyapatite is bioactive and osteoconductive bioceramics.

The main goal of our work is:

- Application of sonochemical synthesis method for preparation of nanosized silver particles and silver/hydroxyapatite composite for potential biomedical application.

Discussion & Conclusions

Urea, applied as a capping agent of silver, promote formation of silver complex which decomposes at 300°C .

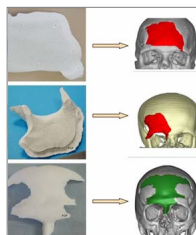
As a result:

- Monophase Ag with the structure of cubic silver (Ag 3C) and sphere-like morphology with particles up to 30 nm in size forms.
- In the case of HAp/Ag composite, Ag with the structure of cubic (3C) and hexagonal (6H) silver and sphere-like morphology with particles up to 10 nm in size attached to the surface of HAp rods was obtained.

Morphology and structure of Ag particles within HAp/Ag composite can be influenced by the contribution of HAp surface to Ag particles growth.

Applications & Perspectives

APPLICATION OF MATERIALS WITH ANTIBACTERIAL PROPERTIES



Implant fabrication

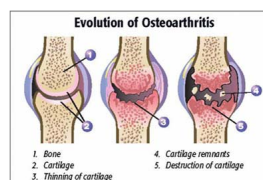
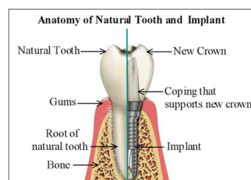
NANOMEDICINE

Prevention

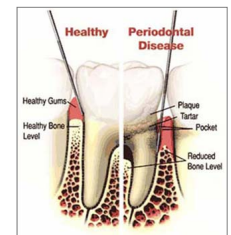
Therapeutics



Metallic replacement for head and neck of femur
 Plastic and metallic replacement for acetabulum (hip socket)
Artificial Hip joint



Treatment of dental infections



Treatment of orthopedic infections

