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## BACTERICIDIAL POWDERS BASED ON HYDROXYAPATITE FOR BIOCOMPATIBLE MATERIALS

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**Introduction.** The fabrication of calcium phosphate materials with antibacterial and antioxidant properties are of great interest in the field of elaboration implants for bone engineering, as well as for cancer treatment. However, the development of functional biomaterials requires further modification of synthetic hydroxyapatite to give it properties close to biological one. For example, the ionic modification changes the crystals size, the agglomeration tendency and improves the osteoinduction and osseointegration properties [1-3]. Whereas the incorporation of tetracycline, the effective against gram-negative and gram-positive microorganism widespread antibiotic, allows to fabricate the antibacterial materials. studies show that such ions are antiresorptive, anti-cancer drugs and antibiotics. To obtain the materials with antitumor properties, we can use the quercetin.

**Main part.** The adsorption efficacy of porous HA particles of tetracycline and quercetin tetracycline using of various. The HA-based material has demonstrated the ability to sustained drug release within 14 days and targeted delivery. Furthermore, we have observed the biocompatibility and potential application of hydroxyapatite particles against *E.coli* and *S.aureus*.

**Conclusions.** The developed porous material based on hydroxyapatite have showed a high loading capacity of tetracycline and quercetin. Such scaffolds are proven to have antibacterial effect against *E.coli* and *S.aureus*, being biocompatible and non-toxic, the use of such hybrid materials loaded in hydroxyapatite may be perspective in the future.

### References:

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