

BIOCOMPATIBILITY OF IMPLANTS TITAN-HIDROXYAPATHITE

BAILA Diana
U.P.B.-T.C.M.
baila_d@yahoo.com

Keywords: implantology, hidroxyapatite, SBF (bioactivity in simulated organic fluid)

Abstract: Using the Rapid Prototyping technics and the tomographic images, one obtains the 3D virtual models and by sinterisation one produces the real models.

For an implant it's important that only the parts who is in contact with the bone must have hidroxyapatite, like bioactive phase with osteoconductive importance.

The presence of bioactive phase permits realizations of new calcium phosphates. The surface analysis presents the calcium phosphates growth, if the implants stay in SBF. The implants of Ti-HA have a better biocompatibility than other metallic implants.

1.Characterisation of Ti-HA implants

The powders Ti-HA are used in implantology, for fingers and for mandibular implants. (fig.1,2)



Fig.1. Model 3D mandibular prosthesis



Fig.2. Models 3D phalangeal prosthesis

One makes probes with constant concentration (5, 10, 15, 20% HA) to study the bioactivity in simulated organic fluid (SBF). One remarks the presence of bioactive phase and realization of new calcium phosphates. (fig.3, 4)

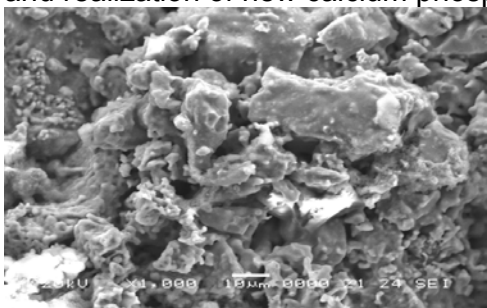


Fig.3. Probe with 5%HA after 7 days in SBF

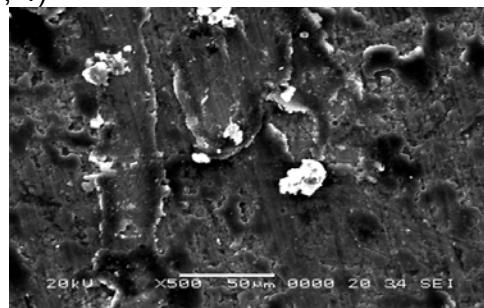


Fig.4. Probe with 10%HA after 7 days in SBF

The rapport Ca/P is greater for the probes with 10%HA than for the probes with 5%HA.

Bibliography

- 1) Berce P. si altii: -Fabricarea Rapidă a Prototipurilor- Editura Tehnică, București 2000;
- 2) Ratner Buddy D. si altii- Biomaterials Science – An introduction to materials in medicine –Academic Press, 1996.