

## عنوان مقاله:

Synthesis and characterization of the novel  $\lambda$ S bioactive glass: bioactivity, biocompatibility, cytotoxicity

## محل انتشار:

فصلنامه کامپوزیت ها و ترکیبات, دوره 2, شماره 4 (سال: 1399)

تعداد صفحات اصل مقاله: 5

## نویسندگان:

Ameneh Bakhtiari - *Department of Biology, Shahid Chamran University, Ahvaz, Iran*

Amir Cheshmi - *Department of Materials Engineering, Babol Noshirvani University of Technology, Shariati Avenue, Babol, Iran*

Maryam Naeini - *School of Nursing and Midwifery, Tehran University of Medical Science, Tehran, Iran*

Sobhan Mohammadi Fathabad - *Department of Engineering and High-Tech, Iran University of Industries and Mines, Tehran, Iran*

Maryam Aliasghari - *Young Researchers and Elite Club, Yadegar-e-Imam Khomeini (RAH) Shahr-e-Rey Branch, Islamic Azad University, Tehran, Iran*

Amir Modarresi Chahardehi - *Integrative Medicine Cluster, Advanced Medical and Dental Institute, Universiti Sains Malaysia, Bertam, ۱۳۲۰۰, Kepala Batas, Penang, Malaysia*

## خلاصه مقاله:

In this research, the  $\lambda$ S bioactive glass with different Ca/P ratios was prepared by the sol-gel route. Scanning electron microscopy (SEM), transmission electron microscopy (TEM), energy dispersive spectroscopy (EDS), X-ray diffraction (XRD), and Fourier transforms infrared spectroscopy (FTIR) were used to study the apatite structure and shape. According to the results, the  $\gamma\lambda\text{SiO}_2\text{-}\gamma\text{P}_2\text{O}_5\text{-}\delta\text{CaO}$  bioglass showed a higher rate of crystalline hydroxyapatite (HA) on its surface in comparison with the other bioglasses. After ۳ days of immersion in the SBF solution, spherical apatite was formed on the  $\gamma\lambda\text{SiO}_2\text{-}\gamma\text{P}_2\text{O}_5\text{-}\delta\text{CaO}$  surface, which demonstrated high bioactivity. A statistically significant promotion in proliferation and differentiation of G۲۹۲ osteoblastic cells was also observed. Regarding its optimal cell viability and bioactivity, the  $\gamma\lambda\text{SiO}_2\text{-}\gamma\text{P}_2\text{O}_5\text{-}\delta\text{CaO}$  bioactive glass could be offered as a promising candidate for bone tissue applications.

## کلمات کلیدی:

Bioactive glass,  $\lambda$ S, Ca/P ratio, Hydroxyapatite

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1352403>



