

SILICA APPLICATIONS IN BIOMATERIALS: TEXTUAL REVIEW

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Abstract

Biomaterials are important tools for the reconstruction of organs and tissues, and silica is widely used in these reconstruction technologies. Hence, a lexical and content analysis was carried out on articles on application of silica in biomaterials, based on a search in the Capes' Journals Portal using the keywords “silica, biomedical, application, scaffold”, between the years 2009 and 2019. The 110 selected articles were analyzed using the IRaMuTeQ software, Word Cloud and Descending Hierarchical Classification (DHC). The words: “silica, cell, nanosilica, bone, material, scaffold and application” appear prominently in the Word Cloud and DHC indicating four classes: (1) physical characterization, (2) biomedicine applications, (3) engineering applications and (4) compatibility characterization. Thus, the analysis of DHC and Word Cloud showed that the main ways of using silica are: mesoporous silica nanoparticles, amorphous silica, silica-based materials, nanofibers and silica hybrids, and the main biomaterials developed are scaffolds, grafts, aerogels, hydrogels, membranes and drug delivery systems.

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