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Bone-bioglass graft-an alternative to improve the osseointegration

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Homologues and xenogenous bones are currently the most used grafts in dentistry because of their performance. However, some inherent disadvantages of these materials have not yet been overcome, such as the lack of biological properties to improve the new bone formation in situ and the long remodeling time. The main aim of this work was to improve the performance of the commercial bone-based grafts and study its properties in vitro. For this purpose, rat bone was combined with bioglass, a synthetic biomaterial that displays high degradation kinetics and bioactivity properties, endowed with biological properties. The sol-gel method was used for 45S5 bioglass (45S5) synthesis, using TEOS and water soluble salts as starting materials. 45S5 was then associated with the rat bone, generating the new graft. FTIR results indicated the hydroxyapatite formation after the bioactivity tests. SEM and bioactivity results were used to assess the evolution of the graft. The bioactivity tests showed that after 30 days the mass gain of about 30 wt.% was due to the deposition of hydroxyapatite crystals at the surface of the grafts, suggesting the potential properties of this new graft for application in implantology.

Biography

Rauany entered his doctorate at the age of 23 at the University of Araraquara -Uniara. She develops research with Bioglass focusing on regenerative medicine and medicinal chemistry, she also works with methodologies in the cell culture laboratory such as resazurin, MTT, DAPI and Biomaterials Laboratory. Currently published 3 articles in journals with good impact factors.