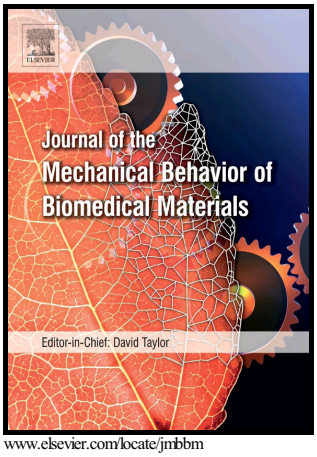

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ABSTRACT

The influence of mesoporous silica nanoparticles (MSNs) loaded with antibiotics on the mechanical properties of functional poly(methyl methacrylate)-(PMMA) based bone cements is investigated. The incorporation of MSNs to the bone cements (8.15 wt%) shows no detrimental effects on the biomechanical properties of the freshly solidified bone cements. Importantly, there are no significant changes in the compression strength and bending modulus up to 6 months of aging in PBS buffer solution. The preserved mechanical properties of MSN-functionalized bone cements is attributed to the unchanged