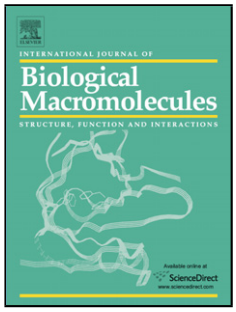

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Bio-based materials with novel characteristics for tissue engineering applications – A review

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Abstract

Recently, a wider spectrum of bio-based materials and materials-based novel constructs and systems has been engineered with high interests. The key objective is to help for an enhanced/better quality of life in a secure way by avoiding/limiting various adverse effects of some in practice traditional therapies. In this context, different methodological approaches including *in-vitro*, *in-vivo*, and *ex-vivo* techniques have been exploited, so far. Among them, bio-based therapeutic constructs are of supreme interests for an enhanced and efficient delivery in the current biomedical sector of the modern world. The development of new types of novel, effective and highly reliable materials-based novel constructs for multipurpose applications is essential and a core demand to tackle many human health related diseases. Bio-based materials possess several complementary functionalities e.g. unique chemical structure, bioactivity, non-toxicity, biocompatibility, biodegradability, recyclability, etc. that position them well in the modern world's materials sector. In this context, the utilization of biomaterials provides extensive opportunities for experimentation in the field of interdisciplinary and multidisciplinary scientific research. With an aim to address the global dependence on petroleum-based polymers, researchers have been redirecting their interests to