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Strategy for polymer network preparation and ensuring intramolecular conditions for further coupling applications

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The synthesis of “smart” molecules is current areas of research as their specific functions can significantly improve their performance in various applications. This study is devoted to synthesis and investigations of poly (N,N dimethylacrylamide-co-3, 9-divinyl-2, 4, 8, 10-tetraoxaspiro (5.5) undecane) as “smart” macromolecular compound in order to evaluate the physicochemical characteristics in terms of temperature and pH sensitive abilities, as well its rheological, dielectric and spectroscopic properties. The new system can be included into the “smart” polymer class owing to the gel formation capacity, binding properties, amphiphilicity, good oxidative and thermal stability, biocompatibility, good films forming, pH sensitive response which is able for. This study evaluates the physiochemical characteristics of poly(N,N-dimethyl- acrylamide-co-3, 9-divinyl-2, 4, 8, 10-tetraoxaspiro (5.5) undecane) (PDMA_U) in terms of temperature sensitive abilities, rheological and dielectrical properties, for bringing useful information for further specific use of these compounds. The stereochemistry of the copolymer network ensures intramolecular strategies for further coupling processes and as well to become a multi-sensitive drug delivery system. In this context quercetin was imprinted into the polymer network and the antioxidant character of the new system was tested. The bio-compatibility was tested *in vivo* and granuloma test in rats was performed correlated with the activity of enzymes involved in oxidative stress as well as immunologic effects of tested supramolecular complexes that include quercetin as therapeutic agent.

Biography

Aurica P Chiriac has completed her PhD in 1994. She has published more than 100 papers in reputed journals and she is the Editorial Board Member of some reputed journals. She has participated in more than 15 Romanian projects and 5 European projects.

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