

New Consideration in Achievement of (Bio) Colloid Nanocomposites

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Extended Abstract

In recent years, nanotechnology has become a part of almost every field of science (e. g. physics chemistry, biology, engineering etc.) allowing us to live a better and easier life. Nanotechnology is required for the measuring, monitoring, assembling and mediating at Nano scale by involving interdisciplinary approach for the structure, composition and stability characterization as well as medical area application [1].

On the other hand, sustainable development is attracting more attention and certainly, the pursuit of new opportunities to involve the resulting products (by-products) in the recycling process has developed high interest. Once the ecological problems are continuously increasing, giving a new life application of the resulting products (e.g. whey – after milk processing) has become a requirement. In fact, both milk as well as whey are a source of healthy nutrients and microorganisms aimed to contribute directly or indirectly to human life.

In addition to that, many study including our works have been demonstrated firstly, the possibility to use the available whey as a cheap by-product source for the isolation of the safe lactic acids bacterial strains (LAB) and secondly, the involving of the respective strains in the nanocomposites (NCs) mediations (AgNPs, ZnONPs, etc.) [2, 3].

Therefore, the present study has proposed to attend several goals; (i) firstly, to promote the recycling approach by using LAB isolates from the whey as by-products for the synthesis of several nanocomposites (AgNPs, ZnONP); (ii) secondly, to mediate nanocomposites and develop the method for synthesis; (iii) thirdly, to employ an adequate characterization based on interdisciplinary approach using complementary methods such as spectroscopy, microscopy, spectrometry and thermal analysis; (iiii) finally and particularly, the present study is coming to indeed shed further light onto innovative approach of (Bio) nanocomposites concerning structure, organic coats onto/into silver core, stability of the biocolloids in time and discrepancies between LAB strains as well as NCs types (AgNPs, ZnO). In another train of thoughts, nowadays, the increasing ecological problems have gained interest worldwide, the detailed information obtained based on the complex interdisciplinary analysis gives a new scientific approach concerning the biologically synthesized nanoparticles naturally coated by organic core.

References

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Acknowledgments: This work was supported by the „Advanced biocomposites for tomorrow's economy BIOG-NET” project that is carried out within the TEAM-NET program of the Foundation for Polish Science co-financed by the European Union under the European Regional Development Fund.