



Editorial

Editorial on “Potential of nanoparticles in sample preparation” by R. Lucena, B.M. Simonet, S. Cárdenas and M. Valcárcel

Nanotechnology spans the whole spectrum of science, offering the potential for limitless applications, and not least in analytical chemistry. New methods of synthesis, fabrication, and characterization are allowing control over the size, shape, and composition of nanometer-scale materials, and the properties of the materials can be precisely selected. The scope for careful tailoring of the physical properties of nanomaterials is possibly the major achievement of nanoscience and is critical for the application of nanomaterials in analytical systems. Nanostructured materials with high surface to volume ratio, different functional groups, and favorable electronic and thermal features provide the flexibility needed in a broad range of analytical applications. Analytical chemistry already makes use of a variety of nanomaterials, structured into nanoparticles, nanotubes, nanowires, nanocomposites, and nanochannels of various sizes and compositions. In particular, nanoparticles, ranging in size from 1 to 1000 nm, have attracted great attention in the field of separation science.

With sample preparation, that is still one of the most time- and labor-consuming parts of the analytical procedure, it is no surprise

that nanoparticles, and other nanomaterials, with their unique and attractive properties, are offering exciting opportunities for the development of novel and highly effective extraction systems. It is critically important that sample preparation will be improved in terms of speed, reliability, and sensitivity.

Professor Miguel Valcárcel's long and rich experience in the field of analytical chemistry gives him the expertise not only to describe the potential of nanoparticles in sample preparation but also to suggest what should be done in future for their greater exploitation in sample treatment techniques and systems. Innovations are always welcome in the scientific world, and Professor Valcárcel's review will surely open up new horizons in the direction of reliable and environmentally friendly sample preparation techniques and methods.

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