

## Study of nanoparticles in a few rivers in North East Italy

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The use of NPs has increased in these years. It is used in many fields: industrial and commercial sectors. The large use may compromise the human and the ecosystem health, because it doesn't know the fate/damages/consequences of NPs in the environment. SP-ICP-MS is a fast method and it can be used for a screening of environmental samples, it combines high sensitivity with analytical speed. This is a water surface study. We collected water surface in a few rivers in the North East of Italy. 3 liters of surface water were filtered with a vacuum pump with membrane with 0.22  $\mu\text{m}$  pore. The filter was put into a test tube with 30 ml of water ultrapure and it was sonicated for 20 minutes. The analysis was performed on SP ICP MS NexION 350 D Perkin Elmer using Syngistix software. Transport efficiency and particle calibration were performed with standard gold nanoparticles of 30 nm, 60 nm and 90 nm. For the test, five replicates of water ultrapure were analysed and LR was calculated. The recovery test was made on water surface spiked and un-spiked and it appeared to be between 94% and 97%. Considering the high dilution of NPs in environmental complex matrix, this study evaluated the efficiency of the concentration via filtration for SP-ICP-MS analysis of nanoparticles of ZnO CeO<sub>2</sub> TiO<sub>2</sub> Ag. The results showed that the analysis

in SP-ICP-MS combined with the filtration allowed to lower the sensitivity of detection and characterization of nanoparticles of two orders of magnitude.

### Biography

Elisa Piccoli graduated from University of Chieti, Italy in 2002. Since 1997, she has worked in the Environmental field, with a specialization in ICP-MS and inorganic micro pollutants. She has published some papers, regarding metal analysis in groundwater, atmosphere and bioaccumulation in bryophyte.

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