Carbon-based nanomaterials in the treatment of natural waters

PhD Thesis Summary

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The doctoral thesis entitled "Carbon-based nanomaterials in the treatment of natural waters" is the result of research on the physical-chemical and radiochemical characterization of some natural waters, the monitoring of the concentrations of some inorganic species (NH_4^+, NO_3^-, NO_2^-), as well as their removal following the application of modern treatment methods based on sorption studies using as sorbents carbon-based nanostructures of unoxidized and oxidized graphite nanoplatelets, xGnP and ox-xGnP, respectively.

The work consists of 7 chapters, structured in two parts:

1. Research of specialized literature
2. Experimental research.

The thesis ends with the "Conclusions" chapter and the bibliographic "References" part.

The experimental part of the thesis includes a characterization of natural mineral waters from both a chemical and radiochemical point of view, the description of method of analysis of nitrogen inorganic specieis in aqueous matrices and the study of the adsorption process of ammonium ions on carbon-based nanomaterials, by using, as sorbents, exfoliated graphite nanoplatelets pristine (xGnP) and oxidized (ox-xGnP).

At the end of the doctoral thesis, further research perspectives on the use of carbon-based nanomaterials for the decontamination of natural waters are presented.