



“Gheorghe Asachi” Technical University of Iasi, Romania



ADSORPTION OF ENDOCRINE DISRUPTORS ON EXFOLIATED GRAPHENE NANOPATELETS

Elena Radu¹, Alina Catrinel Ion^{2*}, Florinela Sirbu³, Ion Ion²

¹National Research & Development Institute for Chemistry and Petrochemistry ICECHIM,
202 Splaiul Independentei Str., 060021 Bucharest, Romania

²University POLITEHNICA of Bucharest, 313 Splaiul Independentei Str., 060042 Bucharest, Romania

³“Ilie Murgulescu” Institute of Physical Chemistry of Romanian Academy,
202 Splaiul Independentei Str., 060021 Bucharest, Romania

Abstract

Drinking water treatment using activated carbon (AC) decontamination offers effective methods for removing some organic compounds, tastes and odors, but it is not so efficient for metals, nitrates, microbial contaminants and other organic and inorganic contaminants. In the last years, nanotechnologies introduced several types of nanomaterials for organic, inorganic and biological removal of contaminants in drinking water, such as: sorption, filtrations and catalytic processes. In this work, exfoliated graphite nanoplatelets (xGnP) were used as bisphenol A (BPA) adsorbents, their potential of removing this endocrine disruptor being investigated. The effect of the following parameters such as: contact time, initial BPA concentration, temperature, ionic strength and pH over the sorption behavior of xGnP was studied. In these experiments, it was found that the maximum adsorption capacity of xGnP at 298.15 K is 850 mg/g and the adsorption process most closely fits to the Langmuir isotherm. The results also showed a decrease in the affinity of BPA molecule for the xGnP binding sites by increasing the temperature.

Key words: decontamination, endocrine disruptor, exfoliated graphite nanoplatelets, sorption

Received: November, 2014; Revised final: March, 2015; Accepted: March, 2015
