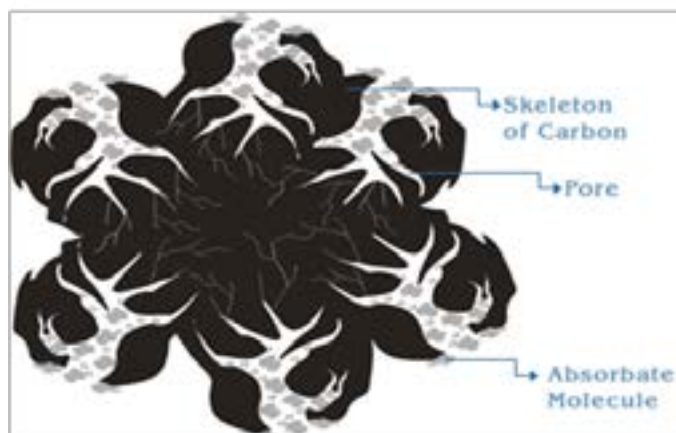


Green activated carbons for mercury removal

George Z Kyzas and Athanasios C Mitropoulos

Eastern Macedonia and Thrace Institute of Technology, Greece

Activated carbons are considered to be the most successful adsorbent materials due to their high adsorption capacity for the majority of pollutants (dyes, heavy metals, pharmaceuticals, phenols, etc). They possess large surface area, and different surface functional groups, which include carboxyl, carbonyl, phenol, quinone, lactone and other groups bound to the edges of the graphite-like layers. Therefore, they are regarded as good adsorbents both in liquid and gas phases. The most widely used carbonaceous materials for the industrial production of activated carbons are coal, wood and coconut shell. These types of precursors are quite expensive and often imported, in many places; hence making it necessary, particularly for developing countries, to find a cheap and available feedstock for the preparation of activated carbon for use in industry, drinking water purification and wastewater treatment. In order to reduce the synthesis cost of activated carbons, some green final products are recently proposed, using several suitable agricultural by-products (lignocellulosics) - i.e. including olive-waste cakes, cattle-manure compost, bamboo materials, apple pulp, potato peel - as activated carbon precursors. In this work, special attention is given to those activated carbons (synthesis, and adsorption applications) which can be characterized as “green” because their origin are green environmental-friendly sources. The application of the prepared carbons was for mercury removal from aqueous solutions.



Biography

George Z Kyzas obtained his BSc, MSc and PhD degrees at Aristotle University of Thessaloniki (Greece). His current interests include the synthesis of various adsorbent materials for the treatment of wastewaters (dyes, heavy metals, pharmaceuticals, phenols, etc). He has published significant scientific papers, books (as Author and/or Editor), chapters in books, teaching notes and reports. He also acted as Guest Editor in Special issues of journals and presented many works in international conferences. He has been awarded with honors, grants and fellowships for his research career/profile by (i) Research Committee of Aristotle University of Thessaloniki (2009, 2013), (ii) National State Scholarships Foundation of Greece (2013) and (iii) Stavros Niarchos Foundation (2016).

georgekyzas@gmail.com