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An overview of the behavior of some polycyclic Nitroaromatic Hydrocarbons (NPAHs) upon irradiation in solution and when adsorbed on solid surfaces

Nitropolycyclic hydrocarbons (NPAHs) are environmental pollutants that consist of several fused aromatic rings containing one or two nitro (NO_2) groups attached to the aromatic rings. It is thought that the photodegradation of NPAHs is related to the geometrical orientation of the nitro groups. To test this hypothesis, the effect of irradiation on 6-nitrochrysene, 9-nitroanthracene and 6-nitrobenzo(a)pyrene has been investigated, when both the NPAHs are dissolved in CH_3CN solution and when they are adsorbed onto various solid surfaces. In solution, there appears to be no clear relationship between the photodegradation and the orientation of the nitro groups while, in the solid-state, the nature of surface does have some influence.

Recent Publications

1. Nada S, Reddy H, Hunter H, Butler I S and Kozinski J A (2015) Supercritical water gasification of lactose as a model compound for dairy industry effluents. Industrial Engineering Chemistry Research 54:9296-9306.
2. Calahoo C, Zwanziger J W and Butler I S (2016) Mechanical-structural investigation of ion-exchanged lithium silicate glasses using micro-Raman spectroscopy. Journal of Physical Chemistry C 120:7213-7232.
3. Asghar F, Fatima S, Rana, Badshah A, Butler I S and Muhammad M N (2017) Synthesis, spectroscopic investigation and DFT study of *N,N'*-disubstituted ferrocene-based thiourea Complexes as potential anticancer agents. Dalton Transactions 47:1868-1878.
4. Mink J, Mihaly J, Nesmeth C, Hajba, L, Nemeth P, Drees M, Lokshin B V, Wolf M and Butler I S (2017) Preparation and characterization by infrared emission spectroscopy and applications of new mineral-based composite materials of medical interest. Applied Spectroscopy Reviews 53(6):439-485.
5. Fathy A A, Butler I S, El Rahman M A, Jean Claude B J and Mostafa S I (2018) Anticancer evaluation and drug delivery of new palladium(II) complexes based on the chelate of alendronate onto hydroxyapatite nanoparticles. Inorganica Chimica Acta 473:44-50.

Biography

Ian S Butler has been a member of the Department of Chemistry at McGill University since 1966. He has served as Department Chair, Associate Dean of the Faculty of Science and Associate Vice-Principal (Research). He is an Honorary Member of the Spectroscopy Society of Canada and has been elected as a Fellow of the Chemical Institute of Canada and the Royal Society of Chemistry (UK). Throughout his career, he has supervised the research of well over 120 scientists, including more than 75 graduate and undergraduate students, and Postdoctoral. Their combined efforts have resulted in the co-authorship of about 550 publications. He has co-authored 11 text books on General Chemistry and Inorganic Chemistry and been recognized nationally by the Gerhard Herzberg Award for Excellence in the Science of Spectroscopy from the Spectroscopy Society of Canada and the David Thomson Award for Excellence in Graduate Teaching and Supervision from McGill University.

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