

SINANBOLA
T. A. B. A.

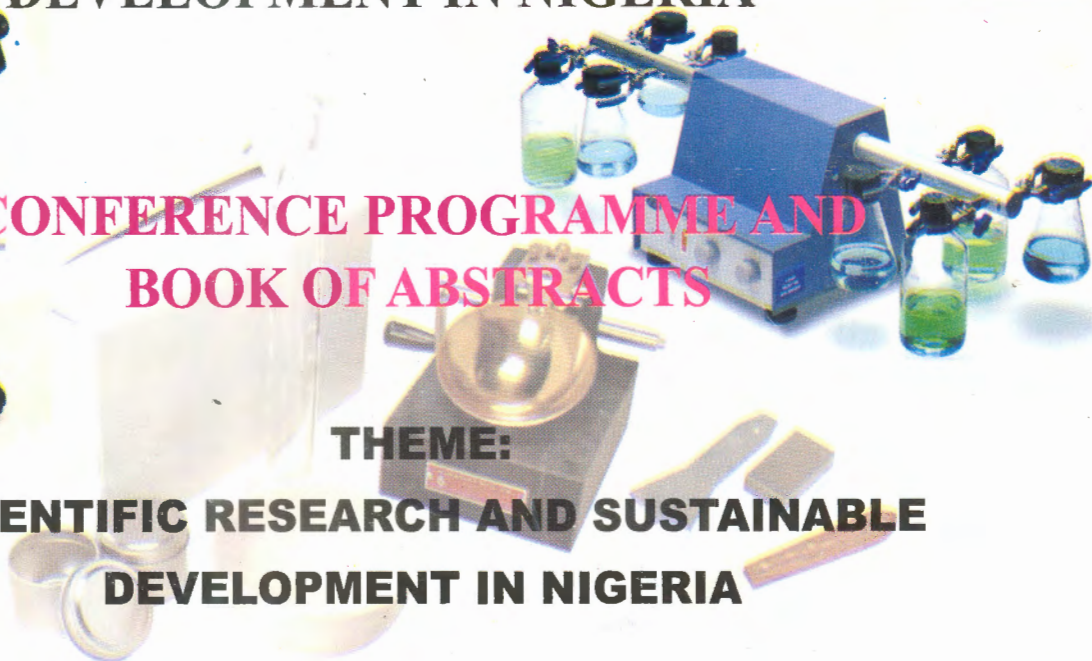


**FACULTY OF SCIENCE
UNIVERSITY OF IBADAN,
IBADAN, NIGERIA**

**INTERNATIONAL CONFERENCE
ON
SCIENCE AND SUSTAINABLE
DEVELOPMENT IN NIGERIA**



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BOOK OF ABSTRACTS**



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IBADAN 2013



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BIODEGRADATION OF POLYNUCLEAR AROMATIC HYDROCARBONS USING INDIGENOUS STRAINS OF BACTERIA FOR SUSTAINABLE SOIL DEVELOPMENT

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ABSTRACT

16S rRNA gene sequence analyses of the four isolates from a former industrial site (OC1, OC2, OC3, and OC4) were assigned to the genus, *Enterobacter* (OC1) and *Pseudomonas* (OC2, OC3, and OC4). The degradation and growth behaviour of the four isolates were investigated on naphthalene, fluoranthene, pyrene and chrysene. All the strains utilized naphthalene, fluoranthene, chrysene but pyrene partially, as sole sources of carbon and energy. The time course studies using relative concentration > 100, >115, > 89 and > 12 ppm for naphthalene, fluoranthene, pyrene and chrysene respectively, resulted in rapid exponential increases in cell numbers and concomitant disappearance of the test substrates. Naphthalene was degraded between the range of 25 and 99%, while chrysene degradation ranged between 35 and 69%, pyrene 4 -21% and fluoranthene 7 -19 %. Our results suggest that contaminated, former industrial sites contain a capable microbial community that may be used for bioremediation of the site for sustainable soil development.

Keywords: 16S rRNA, Contaminated sites, Bioremediation, Napthalene, Fluoranthene, Pyrene, Chrysene

HEAVY METALS IN SOILS AND *TRIDAX PROCUMBENS* IN THE VICINITY OF THE UNIVERSITY COLLEGE HOSPITAL INCINERATOR IN IBADAN, SOUTH-WEST, NIGERIA

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ABSTRACT

The concentrations of heavy metals in soils and the plant, *Tridax procumbens* at a distance of 10, 20, and 30 m away from the incinerator of the University of Ibadan College Hospital were determined over a period of three months (June, July, August) using atomic absorption spectrophotometer. The incinerator bottom ash was also examined. The mean concentration of heavy metals in soils around the incinerator was in the order: Ni > Cr > Pb > Cd > As. At a distance of 10 m, mean concentrations of Ni (87.4 ± 8.9 mg/Kg), Cr (42.9 ± 8.9 mg/Kg), Pb (33.8 ± 5.8 mg/Kg) and Cd (4.4 ± 3.4 mg/Kg) were higher than at other distances. Heavy metal concentrations in plant was in the order Cr > Pb > Ni > Cd > As. At a distance of 10 m, Cr (95.3 ± 149.5 mg/Kg), Pb (43.0 ± 74.5 mg/Kg), and Ni (19.4 ± 12.7 mg/Kg) were higher compared