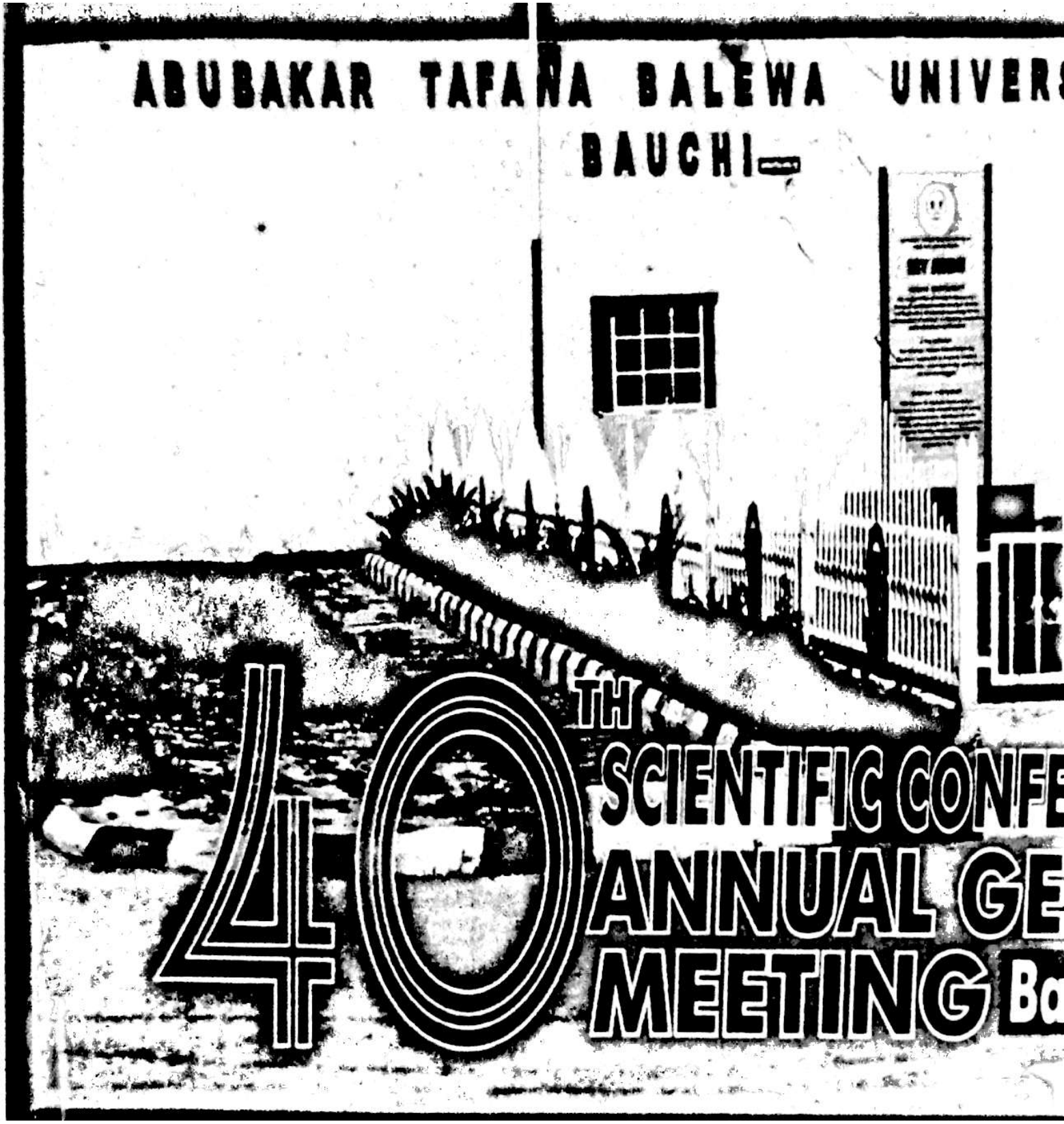

B20: MODIFIED HODGED TEST: A SENSITIVE PHENOTYPIC TEST FOR DETECTION OF CARBAPENAMASE AMONG GRAM NEGATIVE BACILLI.
Yakubu, H.

B21: MOLECULAR CHARACTERISATION AND ANTIBIOTIC SUSCEPTIBILITY PATTERN OF *KLEBSIELLA PNEUMONIAE CARBAPENEMASE* -PRODUCING BACTERIA ISOLATED FROM CLINICAL SAMPLES
Yakubu, H.

B22: MICROBIAL POPULATION DYNAMICS AND ENZYMATIC ACTIVITIES IN DISSOLVED ORGANIC MATTER IN RESPONSE TO POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) AMENDMENT.
***John, R. C.,[1] Etang, B.B.[1] and Etuk, C. U.[2]**

ENVIRONMENTAL MICROBIOLOGY

EM 1: ISOLATION OF MULTIDRUG-RESISTANT *ESCHERICHIA COLI* O157:H7 FROM COWS IN MORO LOCAL GOVERNMENT AREA OF KWARA STATE, NIGERIA: A CROSS-SECTIONAL ABATTOIR-BASED STUDY
Busayo I. Ajuwon[1*], Sola K. Babatunde[1], Deboye O. Kolawole[1], Otunola Adedayo[1] Olatunji M. Kolawole[2] and Abosede H. Lawal[3]

EM 2: ISOLATION AND IDENTIFICATION OF COLIFORM BACTERIA FROM SWIMMING POOL WATER SAMPLES IN MAKURDI, NIGERIA.
Ebele U. UMEH [1], Salem. T. DANIEL *[2], and Jennifer S. AKEM [3].

EM 3: UTILISATION OF JET FUEL BY THREE GRAM NEGATIVE BACILLI ISOLATED FROM KEROSENE CONTAMINATED SOIL PLANTED WITH COWPEA
***Adetitun, D. O[1]., Akinmayowa, O. V[1].,Atolani, O[2]. and Olayemi, A. B[1].**

EM 4: ASSESSMENT OF THE MICROBIAL LOAD OF SWIMMING POOLS WITHIN MAKURDI METROPOLIS.
Aondofa, J.T.M.; Ogli, I.; Avenda, T. F.

EM 5: BIODEGRADABILITY OF UNUSED LUBRICATING ENGINE OILS IN FRESH AQUATIC SYSTEM
***Wokem, V C. and Odokuma, L O.**

EM 6: ANTIBIOTIC SUSCEPTIBILITY OF BACTERIA ISOLATED FROMABATTOIR EFFLUENT-IMPACTED TAGANGU RIVER, ALEIRO, KEBBI STATE, NORTH-WESTERN NIGERIA
[1]G.B. Jega,[1]O.O. Adebisi, and [2]S.S. Manga

EM 7: ISOLATION AND POTENCY TEST OF NITROGEN FIXING BACTERIA AS A SUSTAINABLE MEANS OF AGRICULTURE IN BAUCHI, NIGERIA
Muhammad, M. and Lawal, A. I.

EM 8: BACTERIOLOGICAL ANALYSIS OF WATER OBTAINED FROM SOME SWIMMING POOLS IN MAIDUGURI METROPOLIS
H. B. Imam. A. M. Bukar, A. Bwala, F. K. Ibrahim, F. S. Kuburi, Y. A. Isa and A. Digima

EM 9: REMOVAL OF LEAD AND INHIBITION OF ALGAL GROWTH USING PRODIGIOSIN PRODUCED BY *SERRATIA MARCESCENS*
Shaba, A.M.,[1]Oyeleke, S.B.,[2]*Oyewole, O.A.,[2]Ayisa, T.T.,[1]Okeke, K.S.,[3] and Adam, O. S.[2]

EM 10: ISOLATION AND POTENCY TEST OF PHOSPHOBACTERIA (BIOFERTILIZER) AS A SUSTAINABLE MEANS OF ENHANCING SOIL FERTILITY
Muhammad, M., Nwachukwu, A. L. and A. Abdulhameed.

EM 11: PARASITOLOGICAL QUALITIES OF WATER FROM WELLS LOCATED NEAR MUNICIPAL WASTE DUMP SITES IN PARTS OF ZARIA, NIGERIA.
***Yahaya, O., Umoh, V.J., Ameh, J.B. and Tijjani, M.B.**

EM 12: BACTERIOLOGICAL QUALITY OF SURFACE GROUND WATER FROM WELLS LOCATED NEAR SOLID AND LIQUID WASTE DUMPS.
Yahaya, O. Umoh, V.J and Ameh, J.B.

Prof. K.I.T. Eniola	President	Joseph-Ayo Babalola University Ikeji-Arakeji kennyeniola@yahoo.com, 08033611032
Prof. M.B. Yerima	Vice President	Federal University, Dutse belyerima@gmail.com 08035052930
Dr. E.S Amadi	National Secretary	Federal University of Technology Owerri. amadies2001@yahoo.com 08037790276
Dr. A. B. Suleiman	Assistant Secretary	Ahmadu Bello University, Zaria sulybabs1@yahoo.com, 08036127111
Dr. C.J. Ogugbue	Publicity Secretary	University of Port Harcourt ceejay55us@yahoo.com 08108643429
Prof. E.E Akortha,	Treasurer	University of Benin eeakortha@yahoo.com 08062342257
Prof. O.C. Ugbogu,	Internal Auditor	Abia State University, Uturu osychin@yahoo.com 07034745641
Prof. J.N. Ogbulie	Editor in Chief	Federal University of Technology Owerri. ogbujuan@yahoo.com 08033303275
Dr. A. A. Farouq	Associate Editor (North)	Usman Danfodio University, Sokoto ahmedalifaq@yahoo.com, 08161653400
Prof. D. J. Arotupin	Associate Editor (South West)	Federal University of Technology Akure daniel_juwon@yahoo.com 08069256670
Dr. E. J. Archibong	Associate Editor (South East)	Nnamdi Azikiwe University Awka 08033381861 etimarchibong@rocketmail.com
Prof. V.O. Nwaugo	Business Manager	Abia State University, Uturu. vonwaugo@yahoo.com 08063494654
Prof.(Bar) Smart Obiekezie	Legal Adviser	Nassarawa State University, Keffi drsmartobiekezie@yahoo.com 080307050235
Dr. A. U. Dutsinma	Financial Secretary	Bayero University Kano ualiyu@gmail.com 08035892096

ABSTRACT

Bacteriological analysis of water obtained from some swimming pools in Maiduguri metropolis, viz University of Maiduguri swimming pools, Mashidimari pools and pinnacles swimming pools from the period of April to June, 2012. The results shows that Escherichia coli counts are high in University of Maiduguri pools (4.0 X 10^2 cfu/ml) and the least value is pennicles hotel Maiduguri 3.0 x 10^3 cfu/ml were as Staphylococcus aureus is high in University of Maiduguri with 7.2 x 102cfu/ml value, pennicles 5.0 x 10^2cfu/ml and the least is Mashidimami pool with 4.6 x 102cfu/ml. Shigella spp is more in University of Maiduguri pools, were as 8.0 x10^2cfu/ml and 7.0 x 10^2cfu/ml respectively for Mashidimami and pennicles hotel Maiduguri. Salmonella spp was isolated in high amount in the University of Maiduguri pools with 3.4 x 10^2cfu/ml and the Pennicles pool 2.8 x 10^2 and the least is Mashidimami swimming pool 1.2 x 10^2cfu/ml. Lastly the total heterotrophic bacteria counts are 1.5 x 10^2, 1.0 x 10^2 and 1.1 x 10^2cfu/ml for University of Maiduguri pool, Mashidimami pool and Pennicles hotel pool respectively. Base on the findings of this work, it can be concluded that pinnacles hotel pool is safer for bathers than the other two sources.

EM 9

REMOVAL OF LEAD AND INHIBITION OF ALGAL GROWTH USING PRODIGIOSIN PRODUCED BY *SERRATIA MARCESCENS*

Shaba, A.M.,[1]Oyeleke, S.B.,[2]*Oyewole, O.A.,[2]Ayisa, T.T.,[1]Okeke, K.S.,[3] and Adam, O. S.[2]

[1]Department of Biological Sciences, Niger State Polytechnic Zungeru, Nigeria, [2]Department of Microbiology, Federal University of Technology, Minna, Nigeria,

*[3]Department of Microbiology, Federal University of Technology, Minna, Nigeria

*Correspondence author: oa.oyewole@futminna.edu.ng

ABSTRACT

Background

Heavy metals, especially lead, mercury and cadmium, are important environmental contaminants that present a greater danger to the ecosystem. Some species of toxic phytoplanktons grow rapidly in seawater leading to a phenomenon called the harmful algal bloom (HAB), which results in massive economic loss and environmental disturbances (White *et al.*, 2007). In an effort to develop short-term solutions for controlling HABs and heavy metal contamination, several approaches are being explored, including chemical methods and recently biological methods (Jeong*et al.*, 2005).This study examined the removal of lead and inhibition of *Anabaena sphaerica* and *Oscillatoria agardhii* growth using prodigiosin produced by *Serratia marcescens.*

Methodology

Serratia marcescens,Anabaena sphaerica and *Oscillatoria agardhii* were obtained from Department of Microbiology, Federal University of Technology Minna, Nigeria.

Inhibition of algal growth was studied by the addition of different concentrations of prodigiosin (50µl, 100µl, 150µl) in 90ml of algal culture in conical flask. Inhibition rates were determined using spectrophomotry at the interval of 72 hours of incubation. Removal of lead polluted soil sample was studied by the addition of different concentrations of prodigiosin (50µl, 100µl, 150µl) to 5g of lead polluted soil in 90ml of distilled water. Lead polluted soil was used for the experiment and the initial concentration was determined before treatment. The removal rate was determined at the interval of 4 weeks of incubation for six months using Atomic absorption spectroscopy (AAS).

Results

Anabaena sphaerica recorded highest levels of inhibition (76.7%)at 100µg/L concentration of prodigiosin while *Oscillatoria agardhii*had 66.3% at the same concentration. At concentration of 50µg/L, *A. sphaerica*

respectively. The 100µl of prodigiosin immobilized 52.5% of lead after 20 weeks. This was followed by 50µl and 150µl of prodigiosin in which there was immobilization of 41.2% and 35.3% respectively.

Discussion

The results from this study revealed that prodigiosin has ability to inhibit *A.sphaerica* and *O.agardhii* growth. This is similar to the reports made by Jeong *et al.* (2005) and Jin *et al.* (2012), who used prodigiosin to treat *Cochlodinium polykrikoides* resulting in 78% inhibition.The removal of lead by the prodigioin may be due to the fact that prodigiosin binds to heavy metal to detoxify and remove the lead. The results suggest that the red pigment inhibited cyanobacteria growth and can be developed as a detoxifer of soil polluted with lead.

References

Jeong, H., Yim, J.H., Lee, C., Choi, S.H., Park, Y.K. &Yoon, S.H. (2005). Genomic blueprint of *Hahella chejuensis*, a marine microbe producing an algicidal agent. *Nucleic Acids Research,* 33, 7066-7073.

Jin, Z.P., Luo, K., Zhang, S., Zheng, Q. & Yang, H. (2012). Bioaccumulation and catabolism of prometryne in green algae. *Chemosphere* 87, 278-284.

White, J., Bibb, M., Bld, A. (2007). Dependence of undecyl prodigiosin production in *Streptomycescoelicolor* A3 (2) involves a pathway-specific regulatory cascade. *Journal of Bacteriology* 179,627-633.

EM 10

ISOLATION AND POTENCY TEST OF PHOSPHOBACTERIA (BIOFERTILIZER) AS A SUSTAINABLE MEANS OF ENHANCING SOIL FERTILITY

Muhammad, M., Nwachukwu, A. L. and A. Abdulhameed.

Department of Applied Ecology, Abubakar Tafawa Balewa University, P.M.B. 0248, Bauchi State, Nigeria

ABSTRACT

Background

Agriculture alters the natural cycling of nutrients in soil. Intensive cultivation and harvestingof crops for human or animal consumption can effectively deplete the soil of plant nutrients. In order to maintain soil fertility for sufficient crop yields, soil amendments are typically required. Most soils are deficient in soluble forms of phosphorous. Phosphate is an essential macronutrient for plant growth and development. Phosphate solubilizing bacteria can be used for all crop types. Phosphobacteria have the ability to convert insoluble compounds of phosphorus into available phosphates that enhance nutrient availability to plants (Barea *et al.*, 2005). This research aims at isolation of phosphobacteria from the rhizosphere of potato, test for potency of phosphobacteria as biofertilizer and to produce large quantities of the isolate (Biomass production).

Methodology

For bacterial isolation one gram of rhizosphere soil (in triplicate) of potato was suspended in 9 ml of sterile saline solution (8.9 g L^{-1} of NaCl) and vigorously shaken for 10 min and subsequent serial dilution was prepared. Luria-Bertani agar was prepared for the cultivation of different bacteria and incubated at 28^0c for 1-2 days, then Pikovskayas broth was prepared to test the ability for phosphate solubilisation (Sundara and Shinha.,1962; Subba Rao.,1982) by isolation of the 2-days-old bacterial isolates on Pikovskayas broth, 10 bottles were inoculated for the test. Microscopic study and Identification of Bacterial Isolates was carried out through various biochemical tests. The formation of transparent halos around each bacterial colonies showed solubilization activity. The isolate was mixed with finely grinded charcoal which was used as the carrier material. The carrier material was sterilized by autoclaving it at 121^0 C at 15lbs pressure for 60 minutes. Incorporation of microorganisms in carrier material enables easy-handling, long-term storage and high effectiveness of biofertilizers.

Results

Figure one shows five colonies that gave a halo zone by each isolate and table 1 shows the morphological and biochemical tests on four bacterial isolate.

Table 1: Morphological and biochemical characterization of bacterial isolates

Isolate	Gram's stain	Shape	Arrangement	Motility	Catalase	Urease	Indole	Citrate
P_2^5	+	Rods	Pairs, chains	+•	+	-	-	+
P_3^5	+	Coccus	Tetrads/clusters	+	+	-	-	-
P_3^2	-	Rods	Single	+	+	+	-	+
P_1^4	-	Rods	Single	+	+	+	-	+
P_1^3	-	Rods	Single	+	+	-	-	+