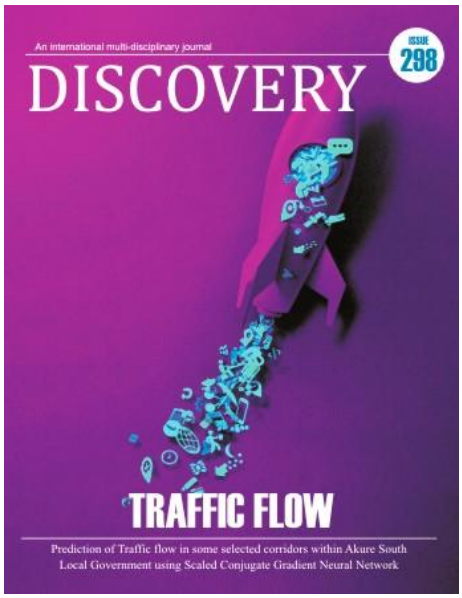
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DISCOVERY

About the Cover



Accurate traffic flow prediction is one of the various ways of decongesting vehicular activities associated with urbanization. As a growing city, Akure south Local Government Area (LGA) metropolis is faced with the challenge of increasing vehicular movement. In this paper an attempt is made in predicting traffic flow using scaled conjugate gradient neural networks to model the traffic data. The traffic data was collected November 2018 to April 2019 (a period of six months) in the selected corridors by using manual traffic count and video camera. The data was processed using Matlab R2015a toolbox. The predicted data were increased by 2% and the corresponding output analyzed. Scaled conjugate gradient neural network gave encouraging results in predicting the traffic flow in the selected areas of interest. (Ref: Ituabhor Odesanya, Joseph Femi Odesanya. Prediction of Traffic flow in some selected corridors within Akure South Local Government using Scaled Conjugate Gradient Neural Network. *Discovery*, 2020, 56(298), 655-662); (Image: EikoOjala).

ENGINEERING

Prediction of Traffic flow in some selected corridors within Akure South Local Government using Scaled Conjugate Gradient Neural Network

Ituabhor Odesanya, Joseph Femi Odesanya

Accurate traffic flow prediction is one of the various ways of decongesting vehicular activities associated with urbanization. As a growing city, Akure south Local Government Area (LGA) metropolis is faced with the challenge of increasing vehicular movement. In this paper an attempt is made in predicting traffic flow using scaled conjugate gradient neural networks to model the traffic data. The traffic data was collected November 2018 to April 2019 (a period of six months) in the selected corridors by using manual traffic count and video camera. The data was processed using Matlab R2015a toolbox. The predicted data were increased by 2% and the corresponding output analyzed. Scaled conjugate gradient neural network gave encouraging results in predicting the traffic flow in the selected areas of interest.

Discovery, 2020, 56(298), 655-662

MEDICINE

Assessment of renal function status in occupationally exposed individuals in cable manufacturing factory in Nnewi

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Background of study: The effect of effluents from a factory environment on the workers may pose a potential risk for workers' health. *Aim:* This is a cross sectional study designed to assess the renal function status in occupationally exposed individuals in cable manufacturing factory in Nnewi, Nigeria. *Methods*: A total of 39 cable manufacturing factory workers who were aged between nineteen and fifty-six years and 79 control subjects (comprising of 39 control subjects from Nnewi (N) and 40 control subjects from Elele (E) respectively) aged between 18 and 44 years were recruited for the study. Venous blood sample was collected from each subject and renal indices involving plasma creatinine, urea and electrolytes levels determined. *Results*: Results showed that the cable manufacturing factory workers had a significantly elevated potassium and sodium levels, significantly decreased bicarbonate and urea concentrations respectively ($p<0.05$), whereas both plasma creatinine and chloride concentrations did not differ significantly in the factory workers when compared with control subjects respectively ($p>0.05$). *Conclusion*: Therefore, this study has shown no negative effect on the kidney function status of cable manufacturing factory workers in Nnewi.

Discovery, 2020, 56(298), 663-671

SCIENCE

Growth performance, caeca microbial population and immune response of starter broiler chicks fed aqueous extract of balanites aegyptiaca and alchornea cordifolia stem bark mixture

Musa bashir, John O Alagbe, Adegbite Motunrade Betty, Omokore EA

A total of Two hundred and fifty (250), 1-day old (Cobb) broiler chicks with mixed sex were used to evaluate the growth performance, caeca microbial population and immune response of starter broiler chicks fed aqueous extract of *Balanites aegyptiaca* and *Alchornea cordifolia* stem bark mixture (BACM). Birds were reared on a deep litter system and randomly divided into five treatment with five replicates consisting of 10 birds each in a completely randomized design. Treatment 1 (T1) were given basal diet + 0 % BACM, T2, T3, T4 and T5 were fed 20, 40, 60 and 80 ml/liter BACM respectively. The experiment lasted for 28 during which clean feed and water were offered *ad libitum*. The results obtained revealed that the average weight gain (AWG), feed conversion ratio (FCR) and mortality were influenced by the dietary treatments ($P<0.05$). Birds in T5 had the highest AWG and FCR (1159.3 g, 1.57) followed by T4 (1070.2 g, 1.70), T3 (1047.4 g, 1.74), T2 (981.1 g, 1.86) and T1 (850.7 g, 2.14) respectively. Activities of superoxide dismutase (SDA), glutathione peroxidase (GPx), catalase (CAT), malonyldialdehyde (MLA) and antibody titres against Newcastle and gumboro disease were significantly affected by BACM ($P<0.05$). Caeca microbial population of *Escherichia coli* and *Lactobacilli* were significantly different among the treatments ($P<0.05$). *E. coli* count in T1 were higher compared to other treatments ($P<0.05$), *Lactobacilli* population increased in T2, T3, T4 and T5 compared to T1. It was concluded that BACM can be fed to broiler chicks at 80 ml/litre without any negetive effect on the performance and immune response of birds.

Discovery, 2020, 56(298), 672-680

Hydrogeochemical Evaluation of Groundwater for Irrigation Purpose in Ekaeru Inyimagu and its Adjoining Area, Ebonyi State, Nigeria

Moses Oghenenyoreme Eyankware

The research was aim at accessing the groundwater suitability for irrigation purpose. A total of six groundwater sample was collected and analysed following APHA 1995 standard. Hydrochemical parameters analyzed include: pH, Electrical conductivity (Ec), Total Dissolved Solid (TDS), Magnesium (Mg), Calcium (Ca), Potassium (K), Sodium (Na), chloride (Cl) and Bicarbonate (HCO3). Irrigation indices was used to evaluate the suitability of groundwater for irrigation use. Results from Piper diagram revealed that the dominant ionic species in the study area is Cl. Results showed that Ec ranges from (126.24 to 752.43 µS/cm), TDS ranges from 90.32

to 855.27 mg L-1, TH ranges from 41.00 to 95.00mg/L-1. Results obtained from irrigation indices revealed that SAR ranges from 0.28 to 0.78, MAR ranges from 11.7 to 536.8%), PI ranges from 0.40 to 1.00%, Kelly Ratio ranges from 0.14 to 0.39, RSBC ranges from -1.43 to 0.6, Na% ranges from 14.00 to 39.02% and SSP ranges from 0.28 to 0.78%. Based on estimated value from MAR sample locations EBY/01, EBY/ 02, EBY/03, EBY/03 were considered unfit for irrigation. While for sample locations EBY/04 and EBY/05 was considered suitable for irrigation. EBY/06 is considered fairly suitable for irrigation.

Discovery, 2020, 56(298), 681-694

Water quality analysis of four different ponds of Adimaly Panchayat of Idukki district

Divya S Rajan, Upasana U

This paper deals with the study of physico-chemical parameters of water in four different ponds situated in Adimaly panchayat of Idukki district. The study was conducted in the monsoon season of 2014. The samples of water were collected and analysed using standard methods. But the Chattupara pond got degraded due to the dumping of waste materials. The water qualities of other four ponds are comparatively good and can be used for domestic and irrigation purposes. The study indicates the need for conservation of the degraded fresh water ecosystem for the sustainable utilization of various fishery resources.

Discovery, 2020, 56(298), 695-700

Variations of physico-chemical parameters of five different ponds in Changanacherry taluk of Kottayam district

Divya S Rajan, Nisha S

Water is one of the nature's most important gifts to mankind that is very essential for the sustenance of life. Quality of water is an important criterion for evaluating the suitability of water for irrigation and drinking purposes. This study deals with the study of physico-chemical parameters of water in five different ponds situated in Changanacherry taluk of Kottayam district. The study was made in the monsoon season of 2018. The physico-chemical analysis was extensively carried out on each sample using known standard methods. The results of this analysis point out the fact that all the parameters were within permissible limits prescribed by BIS water standards for the five ponds except the Pulikkamala pond that got degraded due to the dumping of waste materials. The study reminds the need for conservation of the degraded fresh water ecosystems and their sustainable use that forms a part of our biodiversity.

Discovery, 2020, 56(298), 701-704

SOCIAL SCIENCE

Assessment of Socio-economic condition of tribal community: Empirical evidence from Tribal community oriented areas of Netrokona, Bangladesh

Dhipak Kumer Paul, Md Ashraful Alam, Sanchita Paul, Ripan Chandra Paul, Sanjit Chandra Barman

The study aimed to know the socio-economic status of tribal people. Kalmakanda upazila under Netrokona district of Bangladesh has been selected as a case study area situated in the east border area of Bangladesh where the indigenous Hajong and Garo people are living. For eras, the Hajong and Garo have been the "Adivasies" of Bangladesh who maintained Sanatani religion. Today nearly cent percent of the Garo people practice Christianity. Fifty tribal households were selected randomly for data collection. Primary data were collected from a set of structured questionnaires to know their socio-cultural status. Specially, discussion was made with old age witty people of the tribal as well as secondary data were obtained through reading various tribal magazines and history. From the observation, this study observed that socio-economic condition of the tribal is getting better day by day. Though there are some problems having in the area like poor communication, unemployment, electricity, social security, and pure drinking water but primary health and education condition look enough good as well as socio-cultural bonding with in tribes is also very strong.

Discovery, 2020, 56(298), 705-715