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HUMAN INTESTINAL PARASITE INFECTIONS IN ISHIAGU, A LEAD MINING AREA OF ABIA STATE

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ABSTRACT

A survey of intestinal parasite infections in a heavy metal (Pb) mining area of Abia State (Ishiagu) was carried out using both direct wet preparation and formal/ether concentration methods. A total 512 individuals ranging from primary and secondary school children to adults were screened. Of the number sampled, 177 (34.67 %) had various intestinal parasites. The parasite prevalence were Ascaris lumbricoides (17.80 %), Hookworms (14.80%) Entamoeba histolytica (3.70 %) and Trichuris trichiura (2.3 %). Prevalence for males (35.55 %) and females (33.47%) were not significantly different (P < 0.05). Age distribution of the infections showed a gradual increase from < 10 years (14.0%) to 11-20 years group (36.67%) and peaked at 21-30 years with 57.00 % before decreasing to the least in the > 51 years (27.02 %). This gave a significant age related infection (P < 0.05). The findings were discussed in relation to the rural nature of the community and the activities at the head mining sites.

Keywords: Parasites, Heavy metal mining, Stool specimens

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PREVALENCE OF MALARIA PARASITES AND ANAEMIA IN PREGNANT AND NON PREGNANT WOMEN IN ABA AND OKIGWE TOWNS OF SOUTHEAST NIGERIA

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ABSTRACT

A study of the prevalence of Malaria parasites in pregnant women attending pre - natal care in Government hospitals in two major towns (Aba and Okigwe) in Southeast Nigeria was carried out. Blood was collected by vein puncture from 500 pregnant women in different trimesters (300 from Aba and 200 from Okigwe) and 200 non - pregnant women, 100 from each town. Presence of Malaria parasite was observed microscopically on thin and thick blood smears prepared from each sample. Personal data were collected both orally and from maternity records of the women. The results were analysed statistically using the Chi - square test. Only the ring trophozoite and gametocyte forms of Plasmodium falciparum were observed in the infected samples. A total of 270 (54 %)

pregnant women out of the 500 examined were infected with P. falciparum while 66(33 %) of the non - pregnant women sampled were infected. This represents a significant difference. Aba had 158 (52.6 %) out of the 300 pregnant women examined infected while Okigwe had 112(56 %) of the 200 pregnant women examined infected. There was no significant difference between the results obtained in the two towns. (P > 0.05). Peak prevalence was observed in the first trimester 64.1 % (100 out of 156) while 3rd trimester showed the lowest 45 % (68 of 150). Prevalence was also highest in primgraviidae and women in second pregnancy (67.96 %). Multiparous women (3rd pregnancy and above) had 39.31 % . Age was significant. Anaemia (Hb. < 11g/dl) was observed in 385 (77 %) of the 500 pregnant women examined. Of the 270 infected women 254(94.07 %) were anaemic. Anaemia was significantly higher in women with higher parastemia (Z.cal. = 9.06). The implications of this result on the epidemiology of malaria are discussed.

Keywords: Prevalence, Malaria, Pregnancy, Women, Anaemia, *Plasmodium*

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EFFECT OF FEED RESTRICTION ON GROWTH PERFORMANCE AND ECONOMY OF PRODUCTION OF BROILER CHICKS

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ABSTRACT

An experiment was conducted to determine the effect of feed restriction on growth performance and economy of production using One Hundred and Twenty (120) ANAK 2000 broiler chicks. The dietary treatments consisted of providing feed ad libitum (full fed) and two feed restriction treatments: restricting feeding 80 % of ad libitum between 28 – 70 days of age (DOA); and for 28 – 47 DOA with re-alimentation to full fed 48 - 70 DOA. The three treatments were identified as D_1, D_2, and D_3 respectively. A one-way analysis of variance (ANOVA) in Completely Randomized Design (CRD) was used to analyze data collected on growth performance variables. A cost – benefit analysis was utilized for the economy of production. Analysis of results obtained revealed that final body weight and weekly weight gain of broilers on D_1 and D_3 were similar ($P < 0.05$) but differed from D_2 ($P < 0.05$). No significant difference ($P < 0.05$) was found between D_2 and D_3 and between D_2 and D_1 in weekly feed intake and feed efficiency respectively. Feed efficiency was improved by restriction followed with re-alimentation. A reduced feed cost (N)/Kg weight gain, highest revenue and least cost-benefit ratio were obtained from reduced from birds on D_3.

Keywords: Broiler chicks, feed restriction, Growth performance, Economy of production

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THE EXPOSURE OF *Heterobranchus bidorsalis* JUVENILES TO DIFFERENT CONCENTRATIONS OF BONNY-LIGHT CRUDE OIL AND THEIR EFFECTS ON AMYLASE AND CRETININE KINASE ACTIVITIES

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ABSTRACT

The effects of exposing Heterobranchus bidorsalis juveniles (14.08 ± 0.12 g) to different concentrations of Bonny-light crude oil (BLCO) on amylase and cretinine kinase activities were studied. The exposure of the fish to 1.00, 2.00, 4.00, 8.00 ml L^{-1} BLCO and a control for 4 days toxicity period indicated that the significant increases ($P < 0.01$) in the serum amylase (SRA) and the hepatic cytosolic amylase (HCA) activities in the fish were BLCO concentrations dependent. Reduced SRA and HCA activities noticed within the first 14 days of the recovery period implied that the removal of the oil pollutant from the ambient water chemistry probably lowered the pressure on the blood serum and liver amylase enzyme to catalyse the metabolism of the ingested carbohydrates. Significant increases ($P < 0.05$) in the serum cretinine kinase (SRCK) and the hepatic cytosolic cretinine kinase (HCCK) activities in the fish also followed the pattern shown by the SRA and the HCA activities. The increased SRA, HCA, SRCK and HCCK activities in the blood serum and liver of the fish were indications of a shift in the carbohydrate metabolism due to crude oil exposure.

Keywords: *Heterobranchus bidorsalis*, Bonny-light crude oil, Serum, Cytosolic, Amylase, Cretinine kinase

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HUMAN ONCHOCERCIASIS: CURRENT EPIDEMIOLOGICAL AND DERMATOLOGICAL ASSESSMENT OF THE DISEASE IN UFUMA, NIGERIA

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ABSTRACT

Epidemiological and dermatological assessment of Onchocerciasis was carried out in Ufuma. Anambra State, southeastern Nigeria, between October and December 2005. Total of 404 consenting individuals from the nine villages in Ufuma, were systematically examined by the nodular palpation method. Community nodular prevalence of 30.9 % was recorded, indicating that Ufuma was mesoendemic for Onchocerciasis. 208 (51.5 %) individuals had various degrees of Onchocerciasis-induced skin diseases (OSD). Concomitant infections (nodules with OSD) affected 105 (26.0 %) of all OSD+ve individuals, indicating that certain subjects presented with palpable nodules did not develop any OSD. Age, gender and inter-village specific prevalence of onchocercal nodules, OSD and concomitant infections (nodules with OSD) were also reported in this study. The practice of lay nodulectomy observed in the area is a strong indication of the people's attempt to control the disease. Awareness created by this study, in Ufuma, that Onchocerciasis is a controllable medical condition, may enhance compliance with

Community Directed Treatment with Ivermectin (CDTI) in the study area.

Keywords: Onchocerciasis, Onchocercoma, Onchodermatitis, Endemicity, Ufuma, Nigeria

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A NEW AND SIMPLE METHOD OF CONFIRMATORY DETECTION OF MATING IN ALBINO RATS (*Rattus norvegicus*)

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ABSTRACT

A new and simple method of detecting mated female albino rats was developed and tested for precision and accuracy. The method involved the gross observation of grey to yellowish protein coagulates (remnants of the copulatory plug) on vaginal smears of mated females made on clean glass slides. Results of test of the new method showed that the mean length of time between observation of the protein coagulates on vaginal smears and delivery of the mated pregnant females was 21.39 ± 0.11 days (range = 20 – 23 days, n = 58), which concurred with the normal 21-day gestation length of rats. The coefficient of variation (CV) of imprecision of the new method was found to be 3.74 %. This new method is simple, easy to apply and does not interfere with fertilization and pregnancy, and also does not involve either the use of specially designed rat cages or microscopy of vaginal smears, which were the constraints of the former methods of confirming mating in rats.

Keywords: Albino rats, Detection of mating, New method, Vaginal smears

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EFFECT OF CRUDE OIL AND ITS PRODUCTS ON BILIRUBIN OF AFRICAN CATFISH *Clarias gariepinus*

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ABSTRACT

The study was aimed at determining the effect of Crude oil and its product on bilirubin of

a Catfish. Fishes with an average weight of 21.08 ± 0.12g were subjected to the toxic and recovery phases of different concentrations (0.2 ml/L, 0.4 ml/L, 2.0 ml/L. and 4 ml/L) of Crude oil, diesel, kerosene and petrol for 4 days and 26 days respectively. The bilirubin level of fishes subjected to different concentrations of toxicants was higher than that of the control. The biochemical parameters, investigated showed significant (P < O.05) difference when compared to the control. The bilirubin level increased with increasing concentrations of toxicants. Increased bilirubin level suggests liver cell damage or a metabolic disturbance in the liver involving defective conjugation and / or excretion of bilirubin.

Keywords: Crude oil concentration, *Clarias gariepinus*, Bilirubin, Toxicity, Recovery

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DENTAL DISORDERS AMONG RESIDENTS OF UGBO-ODOGWU ESCARPMENT, UDI HILLS, EASTERN NIGERIA

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ABSTRACT

Oral epidemiological assessment of dental disorders was carried out between April and July 2006 among the residents of Ugbo-Odogwu escarpment on Udi Hill near Enugu, Eastern Nigeria. Dental abrasions with prevalence rate of 37.3 %, attrition (31.3 %), calculus (87.5 %), caries (78.8 %), gingivitis (62.6 %), gum recession (53.8 %), halitosis (82.7 %), periodontitis (52.6 %), stains (78.6 %) and teeth erosions (24.8 %) were the specific dental disorders observed in the area. Every subject had one form or the other of these oral conditions occurring concomitantly. Gender and age specific prevalence of dental disorders as well as nutritional habits, suspected to play major roles in the initiation and development of dental disorders in the study population were discussed. The result of this study could be used to develop a Management Information System (MIS) for Dental Health Care in Nigeria. It may also stimulate further research interests in the relationships between dental disorders and the nutritional habits of other communities in the developing world.

Keywords: Oral Epidemiology, Dental caries, Oral disorders, Eastern Nigeria

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COMPARATIVE EFFICACY OF ANCYLOL, IVOMEC, MEBENDAZOLE AND PIPERAZINE AGAINST *Ancylostoma caninum* IN EXPERIMENTALLY INFECTED PUPS

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ABSTRACT

The efficacy and side effects of single dose treatment at different dose regimen of four anthelmintics against Ancylostoma caninum in experimentally infected pups were evaluated and compared based on total worm count and egg per gram (epg) count. Ancylol at both normal (1 mg/kg/BW) and elevated dose level (1.5 ml/kg/BW) showed 93.15 % and 93.87% (based on worm count) and 93.13 and 93.75 % (based on epg count) respectively. Whereas Ivomec® (a brand of Ivermectin) at normal dose level (1 ml/50 kg) and elevated dose level (1.5 ml/50 kg) was found to be effective. The results were 79.48 % and 86.81% based on worm count and 89.44 % and 92.50 % based on epg count. Mebendazole and Piperazine even at elevated dose level was observed ineffective. Pups treated at normal and elevated dose level revealed acute toxicosis whereas those treated with Mebendazole showed cough and vomiting tendencies which later subsided and also, there was no risk involved in the administration of the drugs. Statistical analysis showed that there was statistical difference (P < 0.05) in the efficacy of the drugs. However there was significant difference (P < 0.05) between % efficacy and dosage. There was also significant difference between (P < 0.5) between epg count and drugs. The use of various compounds against ancylostomiasis in dogs has been discussed.

Keywords: Anthelmintics, Efficacy, *Ancylostoma caninum*

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EFFECT OF NUTRITION ON THE BIRTH WEIGHT AND MULTIPLE BIRTHS OF TRYPANOSOME INFECTED FEMALE *Rattus norevegicus*

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ABSTRACT

Trypanosomiasis is a disease of agricultural interest in livestock. The research was therefore aimed at finding out if adequate nutrition would ameliorate reproductive disorder in trypanosome-infected pregnant rats. Twenty female rats of 120 days old were used. They were kept 5 rats in each cage replicated three times. Four treatments diet each containing trypanotolerant; 80 mg of Vitamin E and 0.3 mg of selenium (additives) were used. In Treatment 1, trypanosome infected reproducing female rats were fed Diet 1 (Control) comprising chick mash mixed with the additives. In Treatment

2, the rats were fed Diet 2 comprising dietary protein and carbohydrate mixed with the additives. In Treatment 3, the rats were fed Diet 3 made up of dietary protein and the additives. In Treatment 4, the rats were fed Diet 4 made of dietary carbohydrate and the additives. The birth weight was measured and number of ratlets from each treatment was also counted to determine the effect of the diets on the birth. At the end of the experiment, it was observed that trypanosome-infected pregnant rats fed Diet 2 (with adequate concentrations of carbohydrate and protein) significantly (P < 0.05) had higher birth weight of offspring and multiple births than the rats fed with other treatments diets indicating that adequate nutrition promoted reproduction in trypanosome-infected rats.

Keywords: Nutrition, Birth-weight, Multiple births, Trypanosome-infection

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IN-VITRO ANTHELMINTIC EFFICACY OF CRUDE AQUEOUS EXTRACTS OF NEEM (*Azadirachta indica*) LEAF, STEM AND ROOT ON NEMATODE

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ABSTRACT

The anthelmintic efficacy of the aqueous extracts of neem (Azadirachta indica) leaf and stem and root barks against the hatching of eggs and the survival of larvae of nematode parasites of small ruminants were studied. The results of the in vitro egg hatch assay showed that the aqueous extracts of the leaf and stem bark produced significant anthelmintic effect through reduction in nematode egg hatch. The reduction in egg hatch was concentration dependent being highest (51 % and 50 % for the leaf and stem bark extracts respectively) at the highest concentration (100 mg/ml) of the extracts but inferior to those produced by albendazole (100 % at 40 mg/ml). Aqueous extracts of the leaf and root bark produced significant reduction in larval survival within 60 minutes at ambient temperature (30 – 35 ºC). Larval death was similar in both extracts and concentration dependent, increasing with increasing concentration of the leaf and root bark extracts. The reduction in larval survival due to the extracts was similar to that produced by albendazole. In general, the aqueous extract of neem leaf was more efficacious in limiting nematode larvae survival and in-vitro egg hatch. The results confirm the folkloric claims that neem has anthelmintic effect and thus suggest its possible usefulness as an anthelmintic.

Keywords: Anthelmintic efficacy, Aqueous extract, Leaf, Stem, Root, Bark, *Azadirachta indica*

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MACROINVERTEBRATE FAUNA OF A TROPICAL FRESHWATER STREAM IN NIGERIA

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ABSTRACT

Macroinvertebrate fauna of Ogbei stream in Anambra state, Nigeria was studied from monthly samples taken from six stations or sites with a benthic scoop net and a serrated cylindrical sampler (SCS) for 12 months (May, 2002 – April, 2003). A total of 11420 macroinvertebrates were collected belonging to 4 classes, 13 orders, 28 families and 50 species. The fauna was dominated numerically by Insecta (98.29 %), Arachnida (0.81%) and Oligochaeta (0.66%). Diptera was the most abundant taxon (42.62%), followed by Odonata (36.89%), Coleoptera (9.76 %) and Hemiptera (8.22 %). Station 3 had the highest percentage of abundance of the macrofauna (28.56 %) followed by station 2 (19.54 %). The highest faunal diversity was recorded in station 6. The macroinvertebrate composition, distribution abundance and diversity were influenced by substrate composition, good water quality and availability of food.

Keywords: Tropical freshwater stream, Macroinvertebrate composition, Abundance, Distribution, Diversity

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EFFECTS OF CEFTRIAXONE ON HAEMATOLOGICAL AND BIOCHEMICAL PARAMETERS OF TURKEY

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ABSTRACT

Short-term effects of ceftriaxone on haematological and biochemical parameters of Nigerian local turkey poults were studied. The pre-treatment blood and serum samples were collected and the weight of animals taken before the administration of body weight for a period of 4 days. The animals were weighed daily. The results showed that eosinophilia was significantly increased ($P < 0.05$) and total bilirubin deceased significantly ($P < 0.05$). Furthermore, there was significant decrease in chloride ion ($P < 0.05$) and increase in bicarbonate ion ($P < 0.05$). Other indices of haematology, liver function test and electrolyte titration were normal ($P < 0.05$). Ceftriaxone caused eosinophilia in treated samples (2.2 ± 0.45^a) as compared to pre-treated samples (1.6 ± 0.89^b). Total bilirubin in the post-administration samples (13.5 ± 1.05^a) was decreased in comparison with pre-administration samples (14.82 ± 0.72^b). Chloride ion decreased in the treated samples (86.6 ± 8.11^a) when compared with untreated samples (98.4 ± 2.88^b). Bicarbonate ion increased (24.8 ± 1.79^a) in the experimental samples when compared to control (24.4 ± 1.34^b). Conclusively, the short term administration of ceftriaxone may cause eosinophilia, hypobilirubinaemia, hypochloraemia and increased bicarbonate ion which may be positive response to hypochloraemia.

Keywords: Haematology, Biochemical Parameters, Ceftriaxone, Turkey

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EVALUATION OF *IN-VITRO* ANTIMICROBIAL ACTIVITIES AND PHYTOCHEMICAL CONSTITUENTS OF *Cassia occidentalis*

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ABSTRACT

The research was carried out to evaluate the in-vitro antimicrobial activity and phytochemical constituents of Cassia occidentialis. Cassia leaves were collected from Kacha town in Niger State and extracted using methanol, hexane, chloroform and water extraction methods. Serial concentrations: 50, 60, 70, 80, 90 and 100 % methanol, hexane, chloroform and aqueous extracts were prepared and sterilized. The bacterial isolates used; E. coli, P. multocida, S. typhi, S. typhimurium, S. pyogenes, S. pneumoniae and K. pneumoniae were authenticated using biochemical and serological methods. The suspension (0.5) of each bacterial isolate was prepared in isotonic sodium chloride. The disc agar diffusion method was performed on 70 Mueller-Hinton agar plates, 10 per microorganism, using serial diffusion concentration: 500, 600, 700, 800, 900 and 1000 mg of hexane, methanol, chloroform and water. The results showed that all the extracts of Cassia occidentalis have antimicrobial activity on E. coli at concentrations between 900 – 1000 mg. E. coli was most susceptible to hexane extract at concentration ranges between 500 – 1000 mg, there was no antimicrobial activity exhibited against the other tested microorganisms. Phytochemical analyses showed the presence of alkaloid, tannin, saponin, glycoside and flavonoid, steroid was absent.

Keywords: Evaluation, *In-vitro,* Antimicrobial activity, Phytochemical properties, *Cassia occidentalis*

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EFFECTS OF ALCOHOL ON OXIDATIVE PARAMETERS OF ALLOXAN INDUCED DIABETIC ALBINO RAT

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ABSTRACT

The effects of alcohol consumption on lipid peroxidation and antioxidant status were investigated in the alloxan induced diabetic rats. Plasma from the diabetic rats not treated with alcohol (DNT); diabetic rats treated with alcohol (DT) and non diabetic rats (ND) were analysed for their malondialdelyde (MDA) and vitamin C levels. Both the glucose level and the body weight were also studied. The mean weights of the rats in the different groups were the same until the onset of diabetes and alcohol ingestion when the weight decreased. After nine (9) days of alcohol supplementation, the DT rats

weighed 114.00 ± 0.41 g, and the DNT rats weighed 121.00 ± 1.22 g while the rats in the controlled group weighed 146.33 0.14 g. The glucose levels for DT, DNT and ND were 29.56, ± 0.56, 28.81 ± 0.87 and 5.42 ± 0.19 nmol/l respectively. Analysis of the lipid peroxidation product (MDA) obtained showed a significant (P < 0.05) increase in MDA values from – DT rate (38.63 ± 3.88) nmol/ml to DNT rats (28.63 ± 1.38 nmol/ml), while MDA value for ND rats was 7.88 ± 1.38 nmol/l. Plasma vitamin C values of 0.62 ± 0.05 mg/100ml, 1.107 " 0.13 mg/100ml and 1.79 ± 0.15 mg/100ml for DT, DNT and ND respectively were obtained.

Keywords: Alcohol, Antioxidant, Lipid peroxidation, Diabetes, Rat

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PLASMODIUM INFECTION IN MAN: A REVIEW

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ABSTRACT

Plasmodium infection in man is caused by the bite of an infected female Anopheles mosquito. This results in the disease, malaria. Malaria has serious debilitating effects on man. It adversely affects man's health, strength and productivity. Here, a review of Plasmodium infection in man including the life cycle, transmission, immunity, symptoms, diagnosis, pathology, prevention, control and treatment is given. Only by knowing about Plasmodium infection, the burden of infection on man and the prevention and control options can we understand the disease better and so be better prepare for the future management of this disease.

Keywords: *Plasmodium* infection, Malaria, Epidemiology, Symptoms, Treatment, Control, Man

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PREVALENCE OF SICKLE HAEMOGLOBIN AND GLUCOSE–6–PHOSPHATE DEHYDROGENASE DEFICIENCY GENES IN THE POPULATIONS OF NORTH WEST AND SOUTH WEST PROVINCES, CAMEROON

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ABSTRACT

Hereditary disorders of erythrocytes are common in many areas of the world, including Cameroon. Limited knowledge on the consequences of high incidences of sickle haemoglobin (HbS) and glucose-6-phosphate dehydrogenase (G6PD) deficiency genes in the Cameroons might have been responsible for the haemoglobin genotype mismatched marriages among the sickle heterozygotes and drug-induced anaemia among the G6PD deficient individuals ignorantly treated with oxidant drugs having high redox potential. The situation therefore, informed the random screening of the populace of the North West and South West populations of Cameroon for these genes with a view not only to reveal their current incidences and level of interaction but also to educate the people on

the consequences of these genetic defects. Our results revealed the total incidences of 32.20 % sickle and 11.61 % G6PD deficiency genes. The percentage frequency of the sickle cell gene was higher in the South western (18.80 %) than in the North West (14.51 %) populations. The percentage incidence of G6PD deficiency was 9.21 % and 1.20 % for males and females respectively in the North West and 10.85 % and 1.46 % for males and females respectively in the South West. The interaction was not significant (P > 0.01) between G6PD deficiency and HbS for the North West and South West populations. These genetic defects must have reached polymorphic levels due to natural selection through survival advantage against death from malaria and consanguineous marriages.

Keywords: Sickle cell gene, G6PD Deficiency gene, Prevalence, Cameroon