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QUESTIONNAIRE AS A TOOL FOR IDENTIFICATION OF HIGH RISK COMMUNITIES IN URINARY SCHISTOSOMIASIS RESEARCH

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ABSTRACT

A study of Schistosomiasis haematobium infection in all the fifteen primary schools in Agulu town, Anaocha Local Government Area of Anambra State, was conducted using questionnaire. Out of the fifteen schools, 7 had pupils with urinary schistosomiasis infection. Ten villages out of 20 in the town were indicated to contribute individuals that attend the 7 schools. Umuowelle Primary School ranked first with a positivity rate of 54.2 % for response "yes" to "blood in urine" and 40.3 % for "Bilharziasis/schistosomiasis". To rate the diagnostic performance of the questionnaire parasitological urine screening was also conducted in all the schools. The results showed that using questionnaire as a diagnostic tool is highly specific (87.5 %) and sensitive (87.5 %). Questionnaire administration was also shown to be cheaper, with a cost 7 times less than parasitological urine screening as well as being time saving. The diagnostic performance of the questionnaire was good in view of its preliminary screening function.

Keywords: Questionnaire, Urinary Schistosomiasis, High risk situations, Rapid method

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DIGESTIVE ENZYME ASSAYS IN THE GUT OF *Oreochromis niloticus* LINNAEUS 1757, *Parachanna* (*Channa*) *obscura* GUNTHER 1861 AND *Gymnarchus niloticus* CUVIER 1829

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ABSTRACT

Digestive enzyme assays in the different gut regions (oesophagus, stomach, caecum, duodenum, ileum, and rectum) of three commercial African freshwater fish species: Nile tilapia Oreochromis niloticus, African snakehead fish Parachanna obscura, and African long knife fish, Gymnarchus niloticus, revealed an array of glycosidases (amylase, sucrase, maltase, lactase, and cellulase); proteases (chymotrypsin, pepsin, and trypsin) and lipases. The pattern of distribution and relative activity of the enzymes showed that the fishes are capable of digesting carbohydrates, proteins and lipids such that they complemented the different dietary habits of the three fish species. Enzyme activity was not detected in the oesophagus and rectum of the three fish species. The relative distribution and activity of the various enzymes were possibly induced by the nutritional

requirements of the fishes.

Keywords: Digestive enzymes, Fish gut, *Oreochromis niloticus*, *Parachanna obscura, Gymnarchus niloticus*

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HAEMATOLOGICAL PROFILE OF *Parachanna* (*Channa*) *obscura* GUNTHER 1861, *Malapterurus electricus* GMELIN 1789 AND *Malapterurus minjiriya* SAGUA 1987

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ABSTRACT

Reference values for some haematological indices of Parachanna obscura, Malapterurus electricus and Malapterurus minjiriya were determined. The mean ± SD values for erythrocyte count (Ec), leucocyte count (Lc), haematocrit (Hct), haemoglobin concentration (Hbc), erythrocyte sedimentation rate (ESR), mean corpuscular volume (MCV), mean corpuscular haemoglobin (MCH), mean corpuscular haemoglobin concentration (MCHC), and plasma protein content (g/dl) determined for P. obscura were 2.00 ± 0.71 x 10^{12}/litre, 40.10 ± 1.32 x 10^{9}/litre, 26.40 ± 3.89 %, 11.48 ± 1.55 g/dl, 13.12 ± 1.26 mm/h, 131.70 ± 108.20 fl, 57.28 ± 43.25 pg, 43.48 ± 6.97 g/dl, 62.90 ± 9.70 g/dl respectively. Ec, Lc, Hct, Hbc, ESR, MCV, MCH, MCHC and plasma protein content determined for M. electricus were 1.96 ± 0.17 x 10^{12}/litre, 31.87 ± 2.30 x 10^{9}/litre, 32.03 ± 1.94 %, 7.08 ± 0.22 g/dl, 2.56 ± 0.53 mm/h, 158.59 ± 5.16 fl, 35.24 ± 1.79 pg, 0.225 ± 0.018 g/dl and 52.89 ± 7.23 g/dl, respectively. Ec, Lc, Hct, Hbc, ESR, MCV, MCH, MCHC and plasma protein content determined for M. minjiriya were 2.09 ± 0.21 x 10^{12}/litre, 38.48 ± 3.10 x 10^{9}/litre, 34.04 ± 2.15 %, 8.28 ± 0.25 g/dl, 2.71 ± 0.58 mm/h, 168.15 ± 8.01 fl, 36.43 ± 2.17 pg, 0.255 ± 0.027 g/dl and 50.85 ± 9.86 g/dl, respectively.

Keywords: Haematological profile, *Parachanna obscura, Malapterurus electricus*, *Malapterurus minjiriya*

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BAOBAB (*Adansonia digitata* L.) SEED PROTEIN UTILIZATION IN YOUNG ALBINO RATS. II. HAEMATOCRIT, PLASMA AND HEPATIC BIOCHEMICAL METABOLITES

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ABSTRACT

The effect of differently processed baobab (Adansonia digitata L.) seed meals on haematocrit and some plasma and liver biochemical parameters in albino rats was investigated. While the animals placed on the raw seed meal recorded comparable growth and liver and plasma biochemical indices to the casein control diet, the cooked and HCl-extracted meals induced significantly ($p<0.05$) slower rates of growth than the control. Also raw and acid-extracted meals induced significant hyperglycemic effect. Serum and liver total lipids were elevated but non-significantly in the animals fed the raw and acid-extracted meals relative to the controls. There was no consistent pattern in the serum and liver cholesterol and the haematocrit trend, but red blood cell (RBC), packed cell volume (PCV) and haemoglobin (Hb) were decreased significantly in rats fed the acid-extracted meal relative to the control. The possible reasons and nutritional implications of these observations were briefly highlighted. It was concluded that the raw seed has a better promise as a source of food supplement and is likely to be satisfactory in supporting growth and maintenance in livestock feeding.

Keywords: *Adansonia digitata*, Baobab, Protein utilization, Haematocrit, Plasma, Hepatic, Biochemical metabolites, Rats

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ECOLOGICAL STUDIES OF THE GASTROPOD FAUNA OF SOME MINOR TRIBUTARIES OF RIVER BENUE IN MAKURDI, NIGERIA

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ABSTRACT

Some tributaries of Benue river in Makurdi were surveyed for gastropod fauna between May and October 2004. The scoop net method was employed and complimented with hand picking technique. Four species of snails were encountered; Lanistes libycus (44.78 %), Melanoides tuberculata (21.86 %), Bulinus truncatus (22.03 %) and Potandoma species (11.33 %). ANOVA revealed no significant difference ($P < 0.05$) in distribution of snail species and physio-chemical parameters showed no striking disparity in the water bodies sampled. The predominant aquatic flora encountered were Ipomoea aquatica, Nymphaea lotus and Graminae species. The nutritional and medical implications of snail species encountered and observed human water contact pattern were discussed.

Keyword: Gastropod fauna, Ecology, Tributaries of River Benue

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REPLACEMENT VALUE OF GUINEA CORN FOR MAIZE IN PRACTICAL DIET FED TO QUAIL (*Coturnix coturnix japonica*) CHICKS

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ABSTRACT

A six week feeding trial was conducted to determine the replacement value of Guinea corn for maize in diet fed to 360, day-old quail chicks on deep litter. Four iso-nitrogenous (22 %Crude protein) diets incorporating graded levels (O, 15, 27 and 42 %) of guinea corn as replacement for maize were used in the trial. The ME levels of the diets ranged from 2700 – 2750 kcal/kg. Each treatment was replicated thrice. Feed intake, weight gain and feed/ weight gain ratio did not differ significantly (P>0.05) among the treatments. Feed cost decreased across the treatments and was lowest for the diet in which 42 % maize was replaced by guinea corn. Feed cost/kg weight gain was lower for diet B(15 % guinea corn) than for other diet tested. Results of this study indicated that a dietary crude protein level of 22 % and M E of 2700 to 2750 kcal/kg feed, of 42 % guinea corn based diet was suitable for growth of Japanese quail chicks.

Keywords: Guinea corn, Quail chicks, Productive Performance

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PATHOLOGICAL CONDITIONS OF CONDEMNED BOVINE LUNGS FROM ABATTOIRS IN AKWA IBOM STATE, NIGERIA

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ABSTRACT

A study of diseases of the bovine lungs was carried out in Akwa Ibom State, Nigeria between (1999 – 2002). A total of 5,369 cattle were slaughtered within the study period out of which, 459 (8.5 %) lungs were condemned. Tuberculosis accounted for 183(39.921), representing 3.4 % of the total cattle population. This was closely followed by Pneumonia, which was 180(39.2 %), representing 3.4 % of this population. Abscesses, 93(20.1 %) and Taenia sp Cysts 3(0.7%), representing 1.7% and 0.1 % respectively of the total cattle population slaughtered also resulted in lung condemnations. The overall annual prevalence of the diseases amongst condemned bovine lungs shows that most of them were encountered in the last three years of study, 10.1 %, 9.7 % and 8.7% for the years 2000, 2001 and 2002, respectively. There was a clear positive seasonal influence on the prevalence of these diseases. The prevalence rate of tuberculosis and abscesses decreased along the seasonal periods from LDS to EDS. The rainy seasonal periods (ERS and LRS) increased the prevalence of pneumonia more than the dry periods while Taenia cysts were only recorded during the early dry season (EDS). It was, therefore, concluded that tuberculosis and pneumonias, both accounting for over 79 %, were the major reasons for bovine lung condemnations at the

abattoirs in Akwa Ibom State.

Keywords: Pathology, Bovine, Lungs, Abattoirs, Akwa Ibom State, Nigeria

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EGG QUALITY OF *Gallus domesticus* UNDER DOMESTIC STORAGE IN NIGERIA

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ABSTRACT

Empirical relationships between egg quality parameters and storage length were determined using the total of 174 fresh chicken eggs stored for 14 consecutive days under three different conditions. These conditions mimicked the current methods of handling eggs domestically and in retail business. Differences in percentage weight loss and interior quality characteristics were significantly affected by type of storage, even after only 5 days of storage (P < 0.05). Generally quality depreciation was lowest in eggs placed in an open bowl and stored in a refrigerator (REF eggs), followed by eggs stored in a closed polythene bag and kept under room temperature (PBR eggs), and highest amongst eggs placed in an open bowl and kept under room temperature (OBR eggs). Correlations between egg parameters and length of storage were in most cases very highly significant (P < 0.001), and in all measured parameters, OBR eggs recorded the highest correlation coefficients (r), followed by PBR eggs, and finally REF eggs. Amongst REF eggs, correlation between Haugh unit values and days of storage was not significant (P > 0.05), whereas correlation with percentage weight loss or yolk index was very highly significant (P < 0.001). It was concluded that eggs placed in polythene bags and kept under room temperature suffer less depreciation in quality compared with eggs kept in open bowls. Where facilities are available, it was suggested that eggs should first be packaged in polythene bags before refrigeration.

Keywords: Correlation, Egg quality, Storage length, *Gallus domesticus*, Nigeria

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ANTI-MICROBIAL RESISTANCE PROFILE OF *Escherichia coli* ISOLATES FROM COMMERCIAL POULTRY FEEDS AND FEED RAW MATERIALS

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ABSTRACT

Information on the level to which commercial feeds and feed raw materials are involved

in the dissemination of anti-microbial resistant pathogenic and commensal bacteria in Nigeria is necessary for feed and stock management. Forty four Escherichia coli isolates from 4 commercial feed brands coded SF, GF, TF and ACF and from 90 various feed raw materials such, fish meal (FM), maize (MA), maize offal (MO), wheat offal (WO), spent grain (SG), blood meal (BM) and soybean meal (SM) etc were screened for anti-microbial resistance profile against 10 antibiotics using the disc diffusion method. Overall, the isolates recorded 80.8 % resistance to cefuroxime, 76.9 % to nalidixic acid, 75 % to ampicillin, and 59.6 % to cotrimoxazole while very low 7.7 % was recorded for tetracycline and 5.8 % for gentamycin, ciprofloxacin and chloramphenicol. Across commercial feed brands, isolates from SF were resistant to nitrofurantoin (100 %), nalidixic acid (50 %) and ampicillin (70 %), while those from TF, GF and ACF were resistant to 7, 6 and 5 antibiotics respectively. Resistance against ampicillin, nalidixic acid and cefuroxime, in isolates from SG, palm kernel cake (PK), MO and WO were high. Organisms isolated from SG and PK recorded high resistance against cefuroxime and cotrimoxazole. Isolates from bone/limestone (B/L) registered 100 % resistance against ampicillin, cotrimoxazole and cefuroxime, while those from maize MA recorded 100 % resistance to cefuroxime and norfloxacin, and over 70 % to nalidixic acid. Soybean meal isolates values for nitrofurantoin, tetracycline, nalidixic acid and ampicillin were high but below 80 %. Thirty fives resistance patterns were observed; with the CF-NB-CO-NA-AM pattern being the most predominant (occurring 10 times). The present data shows that commercial feeds and feed raw materials are important vehicles for the introduction of multi-drug resistance encoding E coli into poultry.

Keywords: Anti-microbial resistance, *E. coli*, commercial feeds, feed raw materials, antibiotics

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PARASITES AND ASSOCIATED CHANGES IN PACKED CELL VOLUME OF HORSES (*Equus caballus*) IN THE SEMI-ARID ZONE, NORTH-EASTERN NIGERIA

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ABSTRACT

A comparative study on the internal and external parasites and the associated changes in the packed cell volume of horses from a rural community (Bama) and an urban Centre (Maiduguri) in the semi-arid zone of North-eastern Nigeria was evaluated through routine clinical and laboratory examinations. Blood and external parasites were not encountered in any of the 18 horses. Four (22.2 %) of the horses were noticed to be shedding the ova of intestinal parasites in their faeces during the study period. Gastrodiscus aegyptiacus (16.7 %) and strongyle (5.6 %) eggs were recovered from the horses. Infection was more common in rural (50 %) than urban (14.3 %) horses. In both locations, infected horses had higher Packed Cell Volume (PCV) (31.3 ± 5.3) than uninfected ones (30.4 ± 3.6). Irrespective of infection status, horses at Maiduguri had higher PCV than their counterparts at Bama. The results suggest that horses in the semi-arid zone of North-eastern Nigeria had moderately low prevalence of infection with gastro-intestinal parasites and that those at the urban location were relatively better cared for than their rural counterparts.

Keywords: Parasites, Horses, Packed cell volume, Semi-arid, Nigeria

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STRATIFICATION AND LIVESTOCK POPULATION CENSUS FOR ENUGU URBAN, NIGERIA: A PILOT SURVEY

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ABSTRACT

Stratification and livestock population census for Enugu Urban, Nigeria, between February and April 2005 is described. Based on ground reconnaissance, six stratification zones identified for Enugu Urban (180 km^2) were, unplanned Village set-up (9.69 km^2), High-density built-up areas (20.25 km^2), Medium-density built-up areas (7.90 km^2), Low-density built-up areas (9.50 km^2), Commercial areas (26.44 km^2) and Undeveloped lands/Farms (106.93 km^2). About 46.63 km^2 or 25.90 % of the stratified Enugu Urban was principal suburbs. Estimated livestock population was achieved with 91.70 % of 2927 households in 21 sample blocks of about 8.34 Km^2 or 17.88 % of the principal suburbs. Livestock population and average population density for stratified Enugu Urban were 32309 (179) for goats, 17027 (95) for sheep, 3765 (21) for pigs, 16152 (90) for dogs, 4338 (24) for cats, 108354 (602) for chickens, 28985 (161) for turkeys and 17160 (95) for ducks. The results of this study may be useful in the formulation of Veterinary, Livestock, Public and Environmental Health Policies, as well as for Livestock Diseases Surveillances, Research Communications and Bioinformatics. The model for this survey could also be adapted for other urban cities in Nigeria and the developing countries of the world where there are no reliable livestock population statistics.

Keywords: Urban stratification, livestock population, diseases surveillances, Bioinformatics

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HOST-VECTOR-PARASITE RELATIONSHIP AMONG INHABITANTS OF THE ANAMBRA RIVER BASIN IRRIGATION PROJECT AREA

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ABSTRACT

A questionnaire survey was employed to identify the sources of contact with parasites and disease vectors among people living in the Anambra River Basin Irrigation Project Area. The survey indicated that more than half of the inhabitants of this area go to farm. While in the farm disease vectors such as mosquitoes, biting midges, snails and tsetse flies are usually encountered. In addition, the lack of proper sewage disposal common among the communities exacerbates the situation. Water from various sources such as rivers, ponds, streams, as well as rainwater are used for many purposes. Common disease symptoms such as diarrhoea, abdominal pain, blood in sputum, body nodules, blood in stool, coughing, itching, headache, fever, haematuria were commonly recorded. Positive relationships were observed between the presence of some vectors and the corresponding disease symptoms.

Keywords: Parasites, Vectors, Contact, Sources, Host, Relationship

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ABATTOIR-BASED STUDY OF THE SUSCEPTIBILITY OF TWO NATURALLY INFECTED BREEDS OF GOAT TO *Haemonchus contortus* IN NSUKKA AREA OF ENUGU STATE, NIGERIA

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ABSTRACT

The study was carried out to assess the susceptibility of two indigenous breeds of goat – the Red Sokoto (RS) and the West African Dwarf (WAD) goats to Haemonchus contortus infection by using the abomasal worm burden and the worm's uterine egg count as the indices. One hundred (100) abomasa each from the RS and WAD slaughter goats were purchased from Nsukka Urban abattoir and Ibagwa rural abattoir for examination between October 2002 and January 2003. The WAD goats had a significantly higher worm burden (7286) than the Red Sokoto goats (4675) (P<0.01). The female-male ratio of the worms showed the RS goats with a higher female population ratio of 1:0:90 as against the 1:1:03 for WAD goats. 240 adult female worms, which were randomly selected from each breed for the uterine egg count showed that the average uterine egg count was significantly higher in WAD goats (748.37) than in RS goats (620.50) (P<0.01). Both the worm and egg burdens exhibited a significant steady drop in both breeds from October 2002 to January 2003 (P<0.001). It is suggestive from this study that RS goats may be less susceptible to naturally acquired Haemonchus contortus infection than WAD goats.

Keywords: *Haemonchus contortus,* Abattoir, Goats, Susceptibility, Egg-burden, Nsukka

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HELMINTH ENDO-PARASITES OF MOCHOKIDS IN A TROPICAL RAINFOREST RIVER SYSTEM

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ABSTRACT

A study of the helminth endo-parasites of Brachysynodontis batensoda, Hemisynodontis membranaceous, Synodontis gobroni, S. clarias, S. sorex, S. budgetti, S. xiphias, S. nigrita, S. filamentosus, S. eupterus, S. schall, and S. ocellifer, randomly sampled from commercial fishers, was made in the lower reaches of Anambra river from March 2001 to February 2002. The helminth endo-parasites recovered were Sandonia sudanensis (Trematoda), Wenyonia synodontis, W. youdeoweii, W. kainji (Cestoda) and Procamallanus laeviconchus (Nematoda). B. batensoda, S. clarias, S. eupterus, S. gobroni and S. ocellifer are new geographical records for W. synodontis, which appeared to be the most important endo-parasite of mochokids in terms of fishery management in the Anambra river. It infected more hosts than the other Wenyonia species put together or the other parasite species. The prevalence of all the endo-parasites was low (≤ 20 %). There were cases of mixed infection involving S. sudanensis and P. laeviconchus as well as Wenyonia species and P. laeviconchus but never between Wenyonia congeners. The habitat most preferred by S. sudanensis and Wenyonia species was the small intestine, whereas P. laeviconchus was found only in the stomach. Prevalence, mean intensity and

abundance of all the endo-parasites were generally higher in the dry than in the rainy season. No visible damage or injury resulting from the endo-parasites was evident on parasitized fish.

Keywords: Parasites, Mochokids, Anambra river

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FISHERIES STATUS AND FISHING GEARS OF A WEST AFRICAN ARID ZONE LAKE

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ABSTRACT

The lake Alau fisheries of the North East zone of Nigeria, Maiduguri contains relatively low fish species exploited artisanally by 365 fishers in all the sampled stations. Station 4 has the highest mean number of fishers (275 ± 21.30) while station 2 has the least mean number (35 ± 9.30). A total of one thousand, eight hundred and thirty one (1831) fish specimens were sampled. The major fish species were from the families; Characidae, Cichlidae, Mochokidae, Schilbeidae, Mormyridae, Cyprinidae, Clariidae, Bagridae, Centropomidae, Polypteridae and Osteoglossidae. The most dominant family observed was the Cichlidae. The species composition recorded was 28 in all the studied stations. Heterotis niloticus was dominant with mean number of 40.4 ± 1.1.28 and percentage composition of 11.2 %. Sex ratio of 1 male to 0.95 female was recorded for Heterotis niloticus. Multi gears fishing were observed. The percentage composition of fishing gears observed were in the order of clap net (33 %), cast net (20 %), gill net (20 %), long line (11 %), Mali trap (15 %) and seine net (1 %). There was a steady increase in number of fishers employing nets of various kinds. Lake Alau fisheries can be rated as over fished due to the pressure of fishers and the quality of their catches.

Keywords: Arid zone, Fisheries resources, Fishing gears, *Heterotis niloticus*