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LENGTH-WEIGHT RELATIONSHIPS OF FISHES FROM ANAMBRA RIVER, SOUTHEASTERN NIGERIA

EZENWAJI, Henry Maduka Godfrey

Fisheries and Hydrobiology Research Unit, Department of Zoology, University of Nigeria, Nsukka, Enugu State, Nigeria.

ABSTRACT

Length-weight relationships (LWR) and standard-total length relationships (STR) were estimated for 87 populations of fishes in Anambra river belonging to 18 families. 33 genera and 45 species. The exponent, b , ranged from 2.007 to 3.750 and had a mean of 2.764 ± 0.338 , which is significantly less than 3, indicating negative allometric LWR for the multispecies populations studied. The distributions of b and $\ln a$ were normal and the correlation between them was negative ($r = -0.864$) and highly significant. STR permits conversion of standard to total length of each population.

Keywords: Length-weight relationships, fishes, Anambra river

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PREVALENCE OF *Fasciola gigantica*, *Cysticercus bovis* AND SOME OTHER DISEASE CONDITIONS OF CATTLE SLAUGHTERED IN NSUKKA URBAN ABATTOIR

¹NGWU, Godwin Ikechukwu, ²OHAEGBULA, A.B.O. and ³OKAFOR, Fabian Chukwuemenam

^{1&3}Parasitology Research Unit, Department of Zoology, University of Nigeria, Nsukka, Enugu State, Nigeria.

²Department of Parasitology and Entomology, Nnamdi Azikiwe University, Awka, Anambra State, Nigeria.

Corresponding author: NGWU, Godwin Ikechukwu, Parasitology Research Unit, Department of Zoology, University of Nigeria, Nsukka, Enugu State, Nigeria

ABSTRACT

*The prevalence of some parasitic infections and other disease conditions of cattle slaughtered in Nsukka urban abattoir was studied from November to December 2001. The tongues, hearts, masseter muscles, intercostal muscles, lungs, spleens, and livers of cattle were examined for various parasitic infections and disease conditions. The examinations were done by dissection, palpation and other physical procedures. Of the organs examined, the lungs, spleen, and liver were infected. The only case of *Cysticercus bovis* infection found was in a liver. Also, all cases of *Fasciola* infections were detected from the liver. Cases of tuberculosis and pneumonia were detected from the lungs. Other disease conditions seen were splenomegaly, jaundice, and telangiectasis. Out of the 150 cattle examined, 30 (20%) were infected or have disease. A total of 150 cattle comprising 116 males and 34 females were examined. The distribution of infections is as follows: 1(0.70%) was infected with *Cysticercus bovis*, 15 (10%) with *Fasciola gigantica*, 4 (2.70%) with tuberculosis. Other disease conditions include 2 (1.33%) with pneumonia, 3(2%) with telangiectasis, 2(1.33%) with splenomegaly and 2(1.33%) with jaundice. The overall prevalence of the conditions studied in the slaughtered cattle include *Cysticercosis bovis* 3.33%, *Fascioliasis* 50%, tuberculosis 13.33%, pneumonia 6.67%, telangiectasis 10%, splenomegaly 6.67% and jaundice 6.67%.*

Key Words: Prevalence, *Fasciola gigantica*, *Cysticercus bovis*, Cattle, disease.

HEAVY METAL CONCENTRATIONS IN A WEST AFRICAN SAHEL RESERVOIR

¹IDOWU, Rachel Toyisi., ²INYANG, Nicholas Matthias
and ³EZENWAJI, Henry Maduka Godfery

¹Department of Biological Sciences, University of Maiduguri, Borno State, Nigeria

^{2&3}Department of Zoology, Fisheries and Hydrobiology Research Unit,
University of Nigeria, Nsukka, Enugu State, Nigeria.

Corresponding author: Idowu, Rachel Toyisi, Department of Biological Sciences, University of Maiduguri, Borno State, Nigeria

ABSTRACT

Heavy metal concentrations were investigated over a period of 12 months in five stations in Alau reservoir, Maiduguri, in the North – east sahel zone of Nigeria. The mean concentrations of zinc, copper, lead, iron and manganese were 0.17 ± 0.02 mg/l (range 0.14 ± 0.03 - 0.19 ± 0.02 mg/l), 0.56 ± 0.06 mg/l (range 0.52 ± 0.01 - 0.64 ± 0.01 mg/l), 0.56 ± 0.02 mg/l (range 0.54 ± 0.03 - 0.58 ± 0.06 mg/l), 0.09 ± 0.02 mg/l (range $0.07 \pm 0.12 \pm 0.01$ mg/l) and 0.19 ± 0.27 mg/l (range 0.04 ± 0.01 - 0.66 ± 0.01 mg/l) respectively. Except for lead, mean concentrations varied significantly between stations ($P < 0.05$). The concentrations of heavy metals were below contamination levels and fall within the limits reported for other West African small sahel reservoirs.

Keywords: Heavy metals, Pollutants, Environment, Alau reservoir, Sahel, Enrichment

**EFFECTS OF TEMPERATURE AND pH ON THE OXYGEN CONSUMPTION
RATE OF *Sudanonautes (Convexonautes aubryi) floweri*
(DE MAN) (CRUSTACEA: DECAPODA)**

INYANG, Nicholas Mathias and NWANKWO, Enyinnaya Lewechi
Department of Zoology, University of Nigeria, Nsukka. Enugu State, Nigeria.

Corresponding author: Inyang, Nicholas Mathias, Department of Zoology, University of Nigeria, Nsukka. Enugu State, Nigeria.

ABSTRACT

*The oxygen consumption rate of a freshwater sub-terrestrial crab, *Sudanonautes floweri* in relation to different temperatures and pH was investigated. The average temperature and pH of the crab's peaty stream habitat were 29.5°C and 7.5 respectively. The lethal temperatures at pH 7.0 recorded for the species were 14.5°C and 34.5°C respectively. The oxygen consumption rate (Q) within the temperature range of 21°C – 31°C increased with temperature but decreased in the zones of temperature stress ($\leq 16^{\circ}\text{C}$ and $\geq 31^{\circ}\text{C}$). There was no significant difference ($P > 0.05$) between weight specific oxygen consumption (QW^{-1}) of the male and female crabs. The oxygen consumption rate was positively correlated with the body weight of the crabs ($r = 1.0$); but was inversely related to the unit weight of the crab per hour ($r = -0.95$). The average oxygen consumption of the animal at 30°C and pH 7.0 was $53.1 \mu\text{g O}_2 \text{g}^{-1} \text{h}^{-1}$.*

Keywords: Temperature, pH, Oxygen consumption, *Sudanonautes floweri*

**LOCAL DISEASE PERCEPTION AND TREATMENT OF ONCHOCERCIASIS IN UZO-UWANI
LOCAL GOVERNMENT AREA, ENUGU STATE, NIGERIA**

UBACHUKWU, Patience Obiageli

Department of Zoology, University of Nigeria, Nsukka, Enugu State, Nigeria.

ABSTRACT

Local disease perception and treatment of onchocerciasis were studied in Uzo-Uwani Local Government Area of Enugu State, Nigeria. The objectives of the study were to ascertain the level of understanding of the aetiology of onchocerciasis and the management of the disease in the area. Different sampling methods including cluster sampling and random sampling were used in the selection of the sample units. Data collection methods included the use of questionnaires and interviews. From the study, it was found that the people of the area are aware of the presence and nuisance value of Simulium flies, commonly called the blackly, but do not associate the bite with the manifestations of onchocerciasis which are common in their communities. It was discovered that ignorance was at the root of many problems associated with Onchocerca volvulus disease such as discrimination against people with oncho-rashes, lack of proper treatment of the disease and abuse of the choice drug for treatment of onchocerciasis (ivermectin). Poverty is also a contributory factor to lack of adequate treatment of the disease in the area. The result also showed that nodulectomy is a common and accepted treatment method in the area for Onchocerca nodule. On the basis of the result, it is recommended that enlightenment programme is needed in the area together with a campaign for nodulectomy. In the enlightenment programme, use should be made of Community Directed Distributors already trained by World Health Organization (WHO) for the distribution of ivermectin under the African Programme for Onchocerciasis Control (APOC).

Keywords: Onchocerciasis, *Onchocerca volvulus*, *Simulium*, disease perception, treatment, Uzo-Uwani.

**DIFFERENCES IN MERISTIC COUNTS OF THE GENUS *Clarias* (PISCES: CLARIIDAE) IN
ANAMBRA RIVER, NIGERIA**

EYO, Joseph Effiong

Fisheries and Hydrobiology Research Unit, Department of Zoology, University of Nigeria, Nsukka, Enugu State, Nigeria. Email: divinelovejoe@yahoo.com

ABSTRACT

*Specific differences in meristic counts were exhibited in both the anal fin ray count and the vertebral count in the clariids of Anambra river, Nigeria. There was a close numerical relationship between the number of anal fin rays and the number of vertebrae. The present study further justifies the taxonomic importance of anal fin ray count in differentiating *Clarias* species.*

Keywords: Meristic Counts, *Clarias*, Clariidae, Anambra River

MAYR'S COEFFICIENT OF DIFFERENCE AND TAXONOMY OF *CLARIAS* (CLARIIDAE – SCOPOLI, 1777)

EYO, Joseph Effiong and INYANG, Nicholas Mathias

Department of Zoology, University of Nigeria, Nsukka. Enugu State, Nigeria.

Corresponding author: Eyo, Joseph Effiong, Department of Zoology, University of Nigeria, Nsukka. Enugu State, Nigeria. Email: divinelovejoe@yahoo.com

ABSTRACT

Coefficient of difference in 54 morphometric characters was studied using 258 Clarias species from Anambra river, Nigeria. There were no differences between C. ebriensis and C. albopunctatus for all the 54 characters studied. The coefficient of difference in morphometric characters of C. ebriensis vs. C. gariepinus indicated that about 90 % of C. ebriensis were significantly different from about 90 % of C. gariepinus in about 34 morphometric characters. Thirty seven differentiating morphometric characters occurred between C. ebriensis and C. anguillaris. Considering the discriminating characters between C. albopunctatus and C. gariepinus, 90 % of C. albopunctatus differed from 90 % of C. gariepinus in about 32 characters. Furthermore, about 90 % of C. albopunctatus differed from 90 % of C. anguillaris in about 35 characters. Differentiating of C. gariepinus from C. anguillaris based on the coefficient of difference was impossible for all the 54 characters studied. The coefficients of difference among all clariids studied were almost identical in 10 characters namely: maximum body depth, pectoral spine height, anal fin base length, inner mandibular barbel length, outer mandibular barbel length, maxillary barbel length, premaxillary teeth band depth, vomerine teeth band depth, prenasal length and nasal - nasal barbel space, with exception of C. ebriensis vs. C. albopunctatus and C. gariepinus vs. C. anguillaris. These characters thus represent "key characters" for differentiating between the "small" and "large" clariids.

Keywords: Mayr's Coefficient of Difference, *Clarias*, Clariidae, Taxonomy

QUANTITATIVE PROTEIN AND FAT METABOLISM IN WEST AFRICAN DWARF SHEEP FED MARGARITARIA DISCOIDEA AS SUPPLEMENT

¹OSAKWE, Isaac, Ikechukwu and ²STEINGASS, Herbert

¹Department of Animal Production and Fisheries, Ebonyi State University, PMB 053, Abakaliki, Ebonyi State, Nigeria.

²Institute of Animal Nutrition (450), 70599 Stuttgart Germany

Corresponding author: Osakwe, Isaac, Ikechukwu. Department of Animal Production and Fisheries, Ebonyi State University, PMB 053, Abakaliki, Nigeria. Phone: 234-43-300488, Email: osakwe_i@yahoo.com

ABSTRACT

Protein and energy utilization and quantitative retention of protein, fat and energy was investigated with twelve castrated Djallonke sheep averaging (20.0 ± 2.2kg BW) in nitrogen and energy balance trials. Dried leaves of Margaritaria discoidea were offered as supplement at two levels (25% (diet 2) and 50% (diet 3) of DMI), replacing hay in a basal hay diet. The basal hay diet without supplementation was the control.

Measurements were performed by means of nitrogen and carbon balances with the use of indirect calorimetry. The digestibility of protein was not influenced by supplementation, while utilization of protein was influenced ($P < 0.05$). Metabolisability of energy (ME/GE) was on the average 46.7 (SEM 1.6) % being not significantly ($P > 0.05$) different between treatment. Diet 3 had a higher ($P < 0.05$) total amount of energy retained in protein and fat (0.28 MJ/d) compared with the control diet. It was concluded that *Margaritaria discoidea* improved protein utilization and retention in Djallonke sheep.

Keywords: *Margaritaria discoidea*, Protein, Energy, Fat utilization and retention, Sheep

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THE EFFECT OF FISH MOISTURE CONTENT ON OVIPOSITION, FECUNDITY AND DEVELOPMENT OF THE HIDE BEETLE, *Dermestes maculatus* DEGEER (COLEOPTERA: DERMESTIDAE)

EZENWAJI, Henry Maduka Godfrey and OBAYI, Nichodemus Sunday

Fisheries/Entomology Research Laboratory, Department of Zoology, University of Nigeria
Nsukka, Enugu State, Nigeria.

Corresponding author: Ezenwaji, Henry Maduka Godfrey, Fisheries/Entomology Research Laboratory, Department of Zoology, University of Nigeria, Nsukka.

ABSTRACT

*Oviposition, fecundity and development of *Dermestes maculatus* in *Clarias ebriensis* with different moisture contents (14%, 36%, 41%, 56%, 66%, 73%, 77%) were investigated from January to April, 2003. Catfish of different moisture content and a pair of male and female *D. maculatus* constituted a treatment and each of the seven treatments was replicated thrice. The treatment with fish of 14% moisture content served as the control. Generally, the pre-oviposition period, egg incubation period, oviposition peak, percentage number of eggs hatching to larvae, duration of larval emergence, larval developmental period and duration of pupal emergence were all moisture-dependent. At 29° C and 58% RH, fecundity ranged from 54-598 eggs. The eggs measured 3.38 ± 0.44 mm in length. The larvae had five larval instars which measured 3.28 ± 0.71 , 6.06 ± 0.82 , 8.04 ± 0.75 , 10.83 ± 0.97 and 13.0 ± 0.29 mm in length respectively. Larval developmental period was 16-23 days and larvae fed voraciously and bored into the flesh and head capsule of fish. Pupae measured 7.65 ± 0.29 mm in length and adults emerged from $\geq 50\%$ of pupae in all treatments. Total developmental period was 59 days.*

Keywords: *Dermestes maculatus*, Oviposition, Fecundity, Development, *Clarias ebriensis*, Moisture content

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EFFECT OF ACTELIC 25 EC ON THE DIFFERENTIAL LEUCOCYTE COUNTS OF THE CATFISH *Clarias albopunctatus* (NICHOLE & LAMONTE, 1953)

OLUAH, Ndubuisi Stanley and MGBENKA, Bernard Obialor

Fisheries and Hydrobiology Research Unit, Department of Zoology, University of Nigeria,
Nsukka, Enugu State, Nigeria.

Corresponding author: Oluah, Ndubuisi Stanley, Fisheries and Hydrobiology Research Unit,

Department of Zoology, University of Nigeria, Nsukka, Enugu State, Nigeria.

ABSTRACT

The changes in the total and differential leucocyte count in the fish Clarias albopunctatus exposed to sublethal concentrations of actellic 25 EC (0, 0.3, 0.5, 0.8 and 1.0 µg/l) were studied for 18 days in a static renewal bioassay system. Compared with the control, there was significant leucocytosis (P<0.05) in the actellic -exposed fish. The total leucocyte counts also differed significantly (P <0.05) in the treatment groups. The lymphocytes were the dominant leucocyte subgroup in the blood of the fish. There was significant lymphocytosis in the actellic 25 EC-exposed fish. Decreased eosinophils, monocytopenia and neutropenia were evident in the treatment groups. These observations are indications of the mobilization of the body's defense system due to Actellic25 challenge leading to leucopoiesis.

Keywords: Actellic, *Clarias*, Stress, Leucocyte, Leucocyte differential count

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COMMUNITY PARTICIPATION IN THE CONTROL OF PARASITIC DISEASES: THE CASE OF UZO-UWANI LOCAL GOVERNMENT AREA

UBACHUKWU, Patience Obiageli

Department of Zoology, University of Nigeria, Nsukka, Enugu State, Nigeria.

ABSTRACT

A study on the epidemiology and effects of human onchocerciasis on productivity and social lives of rural communities in Uzo-Uwani Local Government Area of Enugu State was carried out between 1998 and 2000. The objectives of the study were to assess the level of endemicity of onchocerciasis in the 16 communities that make up the local government area and to ascertain the effects of the disease on the pattern of social interactions and the age of marriage of the infected individuals. The work also involved the local disease perception and treatment of the disease in the area and histopathological studies of the Onchocerca nodules. In the course of the studies, interviews were conducted for individuals and various groups in the communities including the Community Directed Distributors (CDDs) of ivermectin in the area. During these interactions, a number of problems that beset the control of onchocerciasis in the area became obvious. This paper reports on the community participation in the control of the disease, the problems encountered by these rural people in their efforts (which include lack of funds, late arrival of drugs, transportation and communication problems) and makes recommendations on how to overcome some of these problems.

Keywords: Epidemiology, onchocerciasis, productivity, Community Directed Distributors, Control

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HELMINTH FAUNA OF *Tadarida (Chaeraphon) nigeriae* (THOMAS, 1913) (MICROCHIROPTERA: MOLOSSIDAE)

¹OKAFOR, Fabian Chukwuemenam, ²IGBINOSA, Igho Benjamin and ¹EZENWAJI, Henry Maduka Godfery

¹Department of Zoology, University of Nigeria, Nsukka, Enugu State, Nigeria

²Department of Zoology, Ambrose Alli University, Ekpoma, Edo State, Nigeria

Corresponding author: Okafor, Fabian Chukwuemenam, Department of Zoology, University of Nigeria, Nsukka, Enugu State, Nigeria

ABSTRACT

A checklist of helminth parasites isolated from Tadarida (Chaerophon) nigeriae is presented. Out of 857 bats examined 658 (76.78%) were infected by helminth parasites. Details of the taxa presented show that 2 were trematodes; 2 were cestodes; and 5 were nematodes. Observation on the distribution of the worms within the host shows that they were found mainly in the alimentary canal and peritoneal cavity. Rictularia was the predominant helminth parasite of these bats in this study with 49.59% of the bats examined found infected with this parasite. Female bats were found with higher infection rates with the helminths than the males. There are similarities in the type of parasites infecting bats collected from Nsukka and those collected from other places. Significant levels of positive associations exist between the parasites. Food habits based on stomach content analyses revealed that in volume and in actual numbers, beetle (Coleoptera) and moths (Lepidoptera) comprised the major prey items in the diet.

Keywords: Helminths; *Tadarida*, Prevalence, Similarities, Associations, Foods