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AGE FACTOR AND PROXIMATE COMPOSITIONS OF THE MUSCLE OF *Heterobranchus bidorsalis* EXPOSED TO GRADED CONCENTRATIONS OF BONNY-LIGHT CRUDE OIL

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ABSTRACT

Variations in the proximate compositions of three age groups of Heterobranchus bidorsalis exposed to graded concentrations of Bonny-light crude oil (BLCO) were investigated in the laboratory. The fish were exposed to 1.00, 2.00, 4.00 and 8.00 ml L^{-1} concentrations of BLCO for 4 days (toxicity) and 42 days (recovery) periods. Significant decreases (P < 0.05) in the crude protein (P), ether extract (P), ash (P) and dry matter (P) contents of the juvenile (P), the yearling (P) and the adult (P) fish were BLCO-concentration dependent. Lower P0 values in the adult fish than in the juveniles or the yearlings implies that the crude oil compounds might have depleted the quantity of protein faster in the adults than in the juveniles or the yearlings. Significant decreases (P0.05) in the EE content of the fish muscle could be attributed to the harmful effects of petroleum-related aromatic compound (P0 on animals. These P0 might have caused decreases in the muscle triglycerides of the total lipid (P0 content of the three age groups of the fish. Significant increases (P0.05) in the nitrogen free extract (P0 the fish muscle might have been due to the high energy demand imposed on the fish as a positive survival value under the condition of crude oil stress.

Keywords: Heterobranchus bidorsalis, Age groups, Proximate composition, Bonny-light crude oil, Toxicity

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STUDIES ON LIPASE [EC 3.1.1.3] FROM GERMINATING Hura crepitans SEEDS

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ABSTRACT

Lipase activity was monitored on germinating Hura crepitans seeds for 16 days in the dark with olive oil as substrate. The enzyme activity increases from 4.5 units on day zero to 12.0 units on the 12th day and later fell to 10.5 units on the 16th day of germination. The effect of pH on lipase activity was determined with two different peaks at 6.0 and 8.0 respectively. This suggests that there are both acidic and alkaline lipases in the seeds of Hura crepitans. Inhibition showed that EDTA is an activator at concentration below 0.18M. It is also an activator at concentration above 0.5M. The enzyme has a Km of 0.18M with a Vmax of 0.69.

Keywords: Hura crepitans, Lipase, Inhibition, Activation, Km and Vmax

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FEED INTAKE AND NUTRIENT DIGESTIBILITY OF WEST AFRICAN DWARF (WAD) GOAT FED Pennisetum purpureum SUPPLEMENTED WITH Gmelina arborea

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ABSTRACT

Nine (9) West African dwarf goats (8 weeks of age, averaging 6.3 ± 1.3 kg body weight) were used in a 42 day feeding trial to determine the effect of feeding Pennisetum purpureum supplemented with Gmelina arborea on diet intake and nutrient digestibility of goats. The experimental diets were diets 1, 2 and 3 with 0%, 25%, 50% Gmelina arborea leaves and 100%, 75%, 50% Pennisetum purpureum inclusion respectively. The diets contained between 9.1 – 10% crude protein and the goats were fed 2.5% of body weight DM or 900 g of fresh feed per day. Result indicated lack of significant (P > 0.05) differences in the final body weight, although there were significant differences (P < 0.05) on feed intake, weight gain and feed efficiency among the treatment. However, goats on diet 2 performed better than others in all production parameters measured when compared with the control diet. All the nutrients digestibility investigated were significantly affected (P < 0.01). Result obtained from this study showed that West African dwarf goats can be fed up to 25% Gmelina arborea and 75% Pennisetum purpureum inclusion in diet without loss in body weight performance.

Keywords: Pennisetum, Gmelina, Nutrient digestibility, WAD goats, Feed intake

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PREVALENCE OF GASTROINTESTINAL HELMINTHS IN WEST AFRICAN DWARF (WAD) GOATS IN AN AGRARIAN AGRO-ECOSYSTEM

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ABSTRACT

An investigation on the prevalence of gastrointestinal helminth parasites in goats was carried out in six different agrarian agroecosystems of Ikwo L.G.A of Ebonyi State, Nigeria. The objectives of the study were to determine the factors associated with the prevalence of the parasites and to identify the gastrointestinal helminths in feacal samples of WAD goats. Relevant information were collected from the respondents through well-structured questionnaire. A total of 180 random faecal samples were collected individually from goats of varying ages in the different zones. Microscopic examination of each sample was done by the sodium chloride floatation technique. Out of 180 feacal samples collected and examined, 118 (65.5 %) of them were infected by helminth parasites. This indicated a high prevalence of infection. Five major factors were identified to have been associated with the prevalence of the parasites namely: poor system of management, illiteracy, lack of deworming progammes, non-commercial purpose of keeping goats and very old farmers in the business. The following intestinal helminth parasites were found in goats in order of predominance: Haemonchus contortus (38.1 %), Strongyliodes papillosus (19.4 %), Trichostrongylus columbriforms (15.2 %), Oesophagostonum columbianum (14.4 %), Fasciola species (10.1 %) and Moniezia benedeni (2.5 %).

Keywords: Prevalence, Gastrointestinal helminths, WAD goats

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ASPECTS OF THE REPRODUCTIVE BIOLOGY OF HATCHERY-RAISED Clarias gariepinus I: FECUNDITY

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ABSTRACT

The fecundity of four batch weights (10 samples each) of gravid Clarias gariepinus weighing 60 \pm 0.17159 g, 125 \pm 0.15092 g, 250 \pm 0.20683 g and 500 \pm 0.15670 g raised from the hatchery was investigated. The paired ovary of each fish was dissected out, weighed (g) and its length measured (mm). Each paired ovary was stored in a solution of 1 % formalin in 0.6 % saline solution for at least 3 weeks for the solution to harden the eggs and remove egg clumping. After 3 weeks, each paired ovary was torn apart on a 2 mm mesh circular fabricated sieve over a stream of water. The eggs passed through the 2 mm mesh sieve into a receptacle. Sub sample of the eggs from each paired ovary was taken, counted and all the eggs in each paired ovary were determined thereafter by volumetric method. The total fecundity of 40 gravid fish studied ranged from 6,450 to 71,450 eggs per fish. The mean fecundities of the 60 g, 125 g, 250 g and 500 g fish were 8,501.9 \pm 295.5, $13,364.0 \pm 1734.3$, $41,087.9 \pm 12258.1$ and $51,186.0 \pm 13851.0$ eggs respectively. The relationships between fecundity and fish weight (FW) (n = 40, r = 0.8761), fish total length (TL) (n = 40, r = 0.8266), fish ovarian weight (OW) (n = 40, r = 0.7609), fish ovarian length (OL) (n = 40, r = 0.7609)40, r = 0.7236), gonadosomatic index (GSI) (n = 40, r = 0.5992) and fish condition factor (K) (n = 40, n = 0.59= 40, r = 0.9046) obtained were linear and positive and the condition factor appeared to be the best predictor of fecundity in C. gariepinus studied. The higher fecundity of C. gariepinus (range: 6,450 to 71,450) obtained from this study when compared with the range of 9,000 to 25,000 earlier reported from the wild stock indicates that hatchery-raised C. gariepinus is more fecund than the wild fish in the Anambra area of the sub-region. Therefore, hatchery-raised C. gariepinus appears to be better for fish breeding in fingerlings production than the wild fish.

Keywords: Fecundity, Gonadosomatic index, Condition factor, Hatchery-raised Clarias gariepinus

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POLYCULTURE AND FISH YIELD IN RICE-CUM-FISH CULTURE SYSTEM IN DADIN KOWA, GOMBE, NIGERIA

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ABSTRACT

Rice-cum-fish culture was carried out in Dadin Kowa rice fields, Gombe State, Nigeria with a view to determining the effect of different combination of Clarias gariepinus, Oreochromis niloticus and Cyprinus carpio on fish yield. Six rice paddy fields labeled A-C were used for the study. Raised rice seedlings (FARO 27) were transplanted in the paddies before flooding of water. The fish species were stocked at 200 fish pond in three replicates in different combinations as treatments I, II and III. The fish were fed with wheat bran and rice bran at 5 % body weight. The lowest rice yield (2560 kg/ha) was obtained in the paddy where rice was grown without fish. The fish production recorded in treatment I (534 kg) is significantly higher (P < 0.05) than in other two treatments. It is therefore recommended that rice farmers using irrigation facilities of the river Basin Development Authorities should adopt the rice-cum-fish system for increased rice and fish production in Nigeria

Keywords: Fish species combination, Rice-cum-fish culture, Fish yield

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INFLUENCE OF WEIGHT GROUPING ON THE SHORT TERM EGG PRODUCTION OF TWO STRAINS OF LAYER TYPE CHICKEN

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An experiment was conducted using 400 pullets each of H and N brown Nick (Strain I) and Black Olympia (Strain 2) to determine the influence of weight grouping on short term egg production traits. The two strains of layer type chickens were separated on the basis of plumage pattern and body weight at three weeks of age. The result indicates that the high bodyweight (HBW) groups were significantly (P < 0.05) heavier than the light bodyweight (LBW) categories up to the time of first egg in both strains. The HBW and LBW groups were similar in total feed to first egg in both strains. The HBW lines in strain 2 produced significantly (P < 0.05) heavier eggs at first egg, at 30 and 40 weeks compared to the LBW class. There was no significant (P > 0.05) difference between the HBW and LBW lines in strain I for weight of first egg, egg weight at 30 and 40 weeks respectively. Henday rate of lay and total egg mass did not vary according to bodyweight groups in both strains 1 and 2. However, the light brown pullet groups (LBHBW and LBLBW) in strain I were significantly (P < 0.05) superior to the dark brown counterparts (DBHBW and DBLBW) in henday rate of lay and total egg mass. The results further showed that the HBW groups in strain 1 were significantly (P < 0.05) more efficient in converting feed to eggs than the LBW counterparts. In strain 2, there was no significant (P > 0.05) difference between the HBW and LBW groups in feed per dozen eggs. The comparative performance between the two strains of chicken showed that strain I was significantly (P < 0.01) superior to strain 2 in weight of first egg, egg weight at 30 and 40 weeks and henday rate of lay respectively. The two strains of chicken were similar in body weight at first egg and feed per dozen eggs. Based on these results, the only apparent advantage of rearing the HBW and LBW pullet groups separately was in the efficiency of converting feed to eggs in strain I and in weight of first eggs, egg weight at 30 and 40 weeks in strain 2. Between the two strains of chicken, farmers may opt for strain I pullets because of its superior performance in egg number and egg weight traits.

Keywords: Bodyweight groups, Egg production, Bird strains, Superiority

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EPIDEMIOLOGICAL SURVEY OF CANINE BABESIOSIS IN MAKURDI, NIGERIA

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ABSTRACT

The prevalence of Babesia canis and their tick vectors was investigated in Makurdi. 108 dogs were screened for Babesia canis and 208 dogs were examined for tick ectoparasites. 10.2 % of the dogs were positive for Babesia canis infection. Chi square analysis showed no significant difference in infection rates in male and female dogs ($X^2 = 2.579$, df = 1, P > 0.05). 75.9 % of dogs examined for ticks were infested with either Rhipicephalus, Boophilus and Amblyomma species or combination of the three. The paws were the most preferred site of attachment for the ticks. 126 (79.6 %) of the 158 infested dogs had ticks on the paw ($X^2 = 10.388$, df = 4, P > 0.05). The public health implications of these findings especially as relates to the increasing incidence and prevalence of dog borne zoonotic infections are discussed.

Keywords: Babesia canis, Ticks, Public health risk

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PERFORMANCE OF WEANER RABBITS FED PANICUM MAXIMUM, CENTROSEMA PUBESCENS AND SIDA ACUTA SUPPLEMENTED WITH POULTRY GROWERS MASH

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ABSTRACT

Sixteen Crossbred Weaner rabbits aged eight weeks made up of 8 males and 8 females with initial average weight of 650 \pm 21.76 g were subjected to four dietary treatments namely Panicum maximum plus Poultry growers mash (T_1), Centrosema pubescens plus Poultry growers mash (T_2) Sida acuta plus Poultry growers mash (T_3) and Poultry growers mash alone (T_4) which served as Control. The experiment, which lasted for nine weeks, was aimed at comparing the performance of the rabbits fed different forages. The results indicated that there was no significant (P > 0.05) difference in weight gain among the treatment groups. However the group fed Centrosema pubescens recorded the highest numerical weight gain compared with the other groups. Total feed intake and feed conversion ratio of the rabbits fed Panicum maximum, Centrosema pubescens and Sida acuta were similar but significantly (P > 0.01) higher than for rabbits fed poultry growers mash alone. There were significant (P < 0.05) differences in the total feed intake, total dry matter intake, feed conversion ratio and cost of feed per kg live weight gain among rabbits fed different forages. In conclusion, the results of the experiment indicated that all the forages could be used for the feeding of rabbits and that a better performance will be obtained if forages are supplemented with poultry growers mash.

Keywords: Rabbits, Forages, Supplements, Poultry growers mash, Utilization

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THE COMBINED EFFECTS OF AQUEOUS EXTRACT OF *Ficus sycomorus* L. (MORACEAE) STEM BARK AND *Nigella sativa* L. (RANUNCULACEAE) SEEDS ON HEMATOLOGICAL AND BIOCHEMICAL PARAMETERS IN RABBITS

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ABSTRACT

The stem bark of Ficus sycomorus and the leaves of Nigella sativa were collected; dried and extracted using distilled water and filter paper, to study the effects of combination of these extracts on hematological and biochemical parameters in rabbits. Twenty rabbits weighing between 1000 and 1,200 g were randomly separated into four groups of five rabbits each. Group A rabbits were injected with Ficus sycomorus (200 mg/kg), group B; Nigella sativa (100 mg/kg), group C; combination of F. sycomorus (200 mg/kg) and N. sativa (100 mg/kg) while group D rabbits were given distilled water and served as control. Blood (1.2 ml) was collected for analyses of hematological and biochemical parameters using standard methods. Bleeding and clotting times were also measured using ear vein puncture and capillary tube methods respectively. The PCV, Hb and RBC values showed various irregular differences (P < 0.05) due to extracts treatments. The differential leucocytes counts and the biochemical parameters did not show any differences (P > 0.05). The bleeding and clotting times (min.) decreased (P<0.05) due to various extracts treatments compared with non-treated group that was given distilled water. Therefore it was concluded that the extracts either alone or in combination could not affect the peripheral blood adversely and it is non toxic to liver, kidney and muscles as indicated by the biochemical analyses and there was no apparent advantage in combining the two extracts as far as these parameters were concerned.

Keywords: Ficus sycomorus; Nigella sativa; Haematology, Biochemical values

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ELEPHANT INVASION AND ESCALATED DEPLETION OF ENVIRONMENTAL RESOURCES IN A SEMI ARID TROPICAL ECOSYSTEM

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ABSTRACT

For decades, elephants' invasion is known to be associated with severe environmental consequences leading to escalated depletion of environmental resources (plants, water, wildlife and soil). This paper examined the effects of elephants' activity on the environmental resources in Hong and Gombi Local Government areas of Adamawa State, considering the damage they usually Data collection was by personal observation, oral interview and semi-structural questionnaires using 400 respondents. The data collected was analysed using chi-square (x^2) and descriptive statistics. Results showed that the extent of damage was highly significant (P<0.01) for all the crops namely; mango, quava and orange while the types of damage done to plants, water, wildlife and soil as identified in perceived order of importance show that reduce productivity of horticultural crops (96.5%), deforestation (82.3%), water pollution (64.0%), soil erosion (60.0%), scaring of smaller wild animals (58.5%), enhance desertification (55.3%), emigration of wild animals (41.8%), blockage of water ways (35.8%) and extinction of some less resistant plant species (17.8%). Further investigation revealed that large sum of money was lost due to elephants' activity on the horticultural crops as mango (N1,547,946.67), orange (N648,120.00) and quava (#4634,600.00). This paper is of the view that management techniques such as careful culling and cropping of the elephants (97.8%), use of buffer zones (95.5%), upgrading of available forest/game reserves in the study area to National park (73.8%), demarcation of forest areas from farming activity sites using walls or ditches (64%) and mounting of resettlement programmes (46.0%) can go a long way in controlling elephant menace

Keywords: Escalated, Ecosystem, Horticultural crops, Depletion, Extinction, Management

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PROTEIN EXCRETION IN URINE DURING Schistosoma haematobium INFECTION

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ABSTRACT

An epidemiological survey of protein excretion in the urine of people living in Schistosoma haematobium endemic area around Atavu stream in Amagunze, Enugu State, Nigeria was conducted between 1994 and 1995. A verification of the endemicity of the diseases revealed differences in prevalence rate ranged from 46.66 % to 80.00 %. The proteins levels in urine were within normal limits for all pupils and working class studied. The presence of proteinuria and haematuria either singly or in combination signify disease condition. Proteinura was present in 31 (54.38 %) of school children, 17 (29.82 %) of working class and 4 (7.02 %) of aged individual. Four dominant bands were revealed with bands from uninfected persons darker than infected individuals using the cellulose acetate strip method. There were significant differences (P < 0.05) in prevalence and intensity of urinary schistosomiasis due to age. The incidence of infection in these villages shows that Schistosoma haematobium was high in Umunevo than in Isienu.

Keywords: Schistotosomiasis, Schistosoma haematobium, Protein excretion, Proteinuria, Amagunze

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HEALTH SEEKING BEHAVIOUR AND TRADITIONAL MANAGEMENT PRACTICES FOR SYMPTOMS OF ONCHOCERCIASIS BY RESIDENTS OF THE HAWAL RIVER VALLEY, NIGERIA

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ABSTRACT

The health-care seeking behaviour of onchocerciasis infected residents of the Hawal River Valley; North Eastern Nigeria was investigated among 423 infected subjects using structured questionnaires, Focus Group Discussions and In-depth studies. The objectives of the investigations were to determine the preferred forms of treatment and management practices for different symptoms of onchocerciasis. Result obtained showed that overall; self-medication (27.2%) was

the most preferred form of treatment, followed by traditional healing or herbal treatment (25.1%) while visits to hospitals/clinics (12.8%) were the least preferred. %). The differences between the number of people seeking the various types of treatment was found statistically significant (p>0.05). Generally, the form of treatment sought depended on the particular symptoms. For example, while 65.0% of those having musculoskeletal pains; 40.2% of those having pruritis and 34.8% of the visually impaired sought treatment from the drug hawkers/drug stores; none of those with LS, nodules, hydrocoele/elephantiasis and blindness patronised them. The symptoms for which treatment was sought most were musculoskeletal pains (46.7%) and pruritis (38.0%) and those for which least treatment were sought were leopard skin (1.3%) and blindness (1.3%). The result of the Focus Group Discussion (FGD) showed that screening of doors and windows was the most popular method (45.3%) of vector (Simulium) control. Personal hygiene (43.0%) and steam-bath (31.3%) were the most popular ways of prevention and management of pruritis (crawcraw) respectively while no traditional medication was found potent for the treatment or reversal of severe visual lesion and blindness.

Keywords: Health-care, Onchocerciasis, Treatment, Management, Blindness