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Utilization and Proximate Composition of Nile Tilapia, Common Carp and African Mudfish Polycultured in Fertilized Ponds

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Abstract : Impact of poultry dropping, cow dung and rumen content on utilization and proximate composition of Oreochromis niliticus, Clarias gariepinus and Cyprinus capio in a polyculture system were studied. The research was conducted over a period of 52 weeks. Poultry droppings (PD), cow dung (CD) and rumen content (RC) were applied at three levels 30g,60g and 120g/m2/week, 25g,50g and 100g/m2/week and 22g, 44g and 88g/m2/week treatment, respectively. The control only conventional feed with 40% CP without manure application was used. Physicochemical and biological properties measured were higher in manure pond than control. The difference was statistically significant ($P < 0.05$) between and within treatments with exception of temperature with a combined mean of 27.900C. The water was consistently alkaline with mean values for pH of 6.61, transparency 22.6cm, conductivity 35.00µhos/cm, dissolved oxygen 4.6 mg/l, biological oxygen demand 2.8mg/l, nitrate and phosphates 0.9mg/l and 0.35mg/l, respectively. The three fish species increase in weight with increased manure rate, with a higher value in PD treatment on C. capio record 340g, O. niloticus weighed 310g and C. gariepinus 280g over the experimental period. Fishes fed supplementary diet (control) grew bigger with highest value on C. capio (685g) O. niloticus (620g) and then C. gariepinus (526g). The differences were statistically significant ($P < 0.05$). The result of whole body proximate analysis indicated that various manures and rates had an irregular pattern on the protein and ash gain per 100g of fish body weight gain. The combined means for whole fish carcass protein, lipids, moisture, ash and gross energy were 11.84, 2.43, 74.63, 3.00 and 109.9 respectively. The notable exceptions were significant ($p < 0.05$) increases in body fat and gross energy gains in all fish species accompanied by decreases in percentages of moisture as manure rates increased. Survival percentage decreases from 80% to 70%. It is recommended to use poultry dropping as manure/feeds at the rate of 120kg/ha/week for good performances in polyculture.

Keywords : organic manure, Nile tilapia, African mud fish, common carp, proximate composition
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