study revealed that the value of bacteria counts in experimental pond water was higher in 2 weeks in all the experimental ponds and the values decreased in 4, 6, and 8 weeks. Pond 2 recorded higher values of bacteria counts at 8 weeks when compared to other experimental ponds and there was no significant difference ($p > 0.05$) among the experimental ponds except 6 weeks that recorded a significant difference ($p < 0.05$) among the experimental ponds. The value of bacteria counts in the gill, liver and intestine was higher in pond 3 at 4 and 8 weeks when compared to other experimental ponds and there was no significant difference ($p > 0.05$) among the experimental ponds. The value of microbial loads obtained in the gill, liver and intestine were higher than the world health organization (WHO) acceptable limits 3.0 $\log_{10}$ CFU/g for fish and 6.2~6.5 $\log_{10}$ CFU/mL for wastewater.

Morphological identification was analyzed based on the shape, texture and colour of bacteria colonies on inositol brilliant bile agar. Forty (40) isolates tested positive for oxidase, catalase, mannitol and citrate biochemical tests, they also tested negative for urease, methyl red and glucose biochemical tests. This study supports the report of Wang et al. (2020) who observed a similar trend in the morphology and biochemical test of *P. shigelloides* during isolation and characterization from wastewater and tissues of *Ictalurus punctatus*. The identification of presumptive *P. shigelloides* in the pond water and fish tissues (gill, liver and intestine) is aligned with the observation of Krovacek et al. (2000) that fish and shellfish are the natural habitats of *P. shigelloides*. Jon et al. (2013) also isolated *P. shigelloides* from farm-cultured eels (*Anguilla japonica*) and their environmental waters in Korean eel farms. This study also agrees with Adesiyan et al. (2019) who stated that *P. shigelloides* is one of the indigenous bacteria of an aquatic environment.

This study was evaluated to look at the pattern of resistance or susceptibility to some of the commonly used 12 antibiotics in Nigeria and the forty presumptive *P. shigelloides* isolates were obtained from the pond water and gill, liver and intestine of *C. gariepinus*. This study revealed that cefuroxime and cefotaxime, a derivative of cephems is the least effective because all the 40 presumptive *P. shigelloides* were (100%) resistant to this class of antibiotics. The resistance of the isolates is also high in meropenem (87.5%) and ceftazidime (77.5%), which are the derivatives of carbapenems and cephems, respectively. Vancomycin (70%) a derivative of glycopeptides, tetracycline (42.5%), a derivative of tetracycline, ceftriaxone (37.5%), a derivative of cephems, chloramphenicol (22.5%) a derivative of phenols, ciprofloxacin (20%), a derivative of fluoroquinolones and cotrimoxazole (17.5%), a derivative of sulfonamides. However, presumptive *P. shigelloides* exhibited 100 % susceptibility to gentamicin and amikacin, a derivative of aminoglycosides. Gentamicin and amikacin proved to be excellent options for the treatment of infection associated with this organism. This study supports the report of Wang et al. (2020) who reported a high resistance value of *Plesiomonas shigelloides* in *Ictalurus punctatus* against cefotaxime, ciprofloxacin, ceftazidime and chloramphenicol.

The continuous use of antibiotics in veterinary medicine have resulted in a prompt selective potency in the emergence of drug resistance among several Gram-negative bacteria. However, the presence of antibiotic resistance mediated by extrachromosomal elements or R-plasmid is common among the members of Enterobacteriaceae (Some et al., 2021). This study revealed a high occurrence/ frequency of antibiotic resistance in experimental pond water and tissue of *C. gariepinus*. It was found from this study that presumptive *P. shigelloides* were resistant to multiple antibiotics which suggests consumption of such fishes could be detrimental to human health and wastewater from the pond could serve as a means of transmitting antibiotic-resistant bacteria such as *P. shigelloides* which are of public health importance into the environment. Multiple antibiotic-resistant phenotypes with tetracycline, cephems, carbapenems and glycosides (13) were observed to have the highest frequency of occurrence and this aligned with the report of Cooke (1976) and Reinthaler et al. (2003) who stated that natural water sample, effluents and aquatic organisms were more resistant to multiple antibiotics. Multiple antibiotics resistant phenotypes exhibited by the larger percentage of presumptive *P. shigelloides* obtained from this study in an indication of abuse of antibiotics in aquaculture settings.