Table 4 Colony characteristics of isolates from gill, liver and intestine

Weeks	Isolate code	Colony shape	Elevation	Edge	Surface	Pigmentation	Opacity
0	FGctr	Short rod	Raised	Regular	Dull	Pink	Opaque
	FGTii	Short rod	Raised	Entire	Smooth	Pink	Opaque
	FITv	Short rod	Raised	Regular	Smooth	Pink	Opaque
	Fiiv	Short rod	Raised	Regular	Smooth	Pink	Opaque
	FLTiii	Short rod	Raised	Irregular	Rough	Pink	Opaque
4	GGTii	Short rod	Raised	Entire	Smooth	Pink	Opaque
	GGTiii	Short rod	Raised	Regular	Smooth	Pink	Opaque
	GGTv	Short rod	Raised	Regular	Smooth	Pink	Opaque
	GGTiv	Short rod	Raised	Entire	Smooth	Pink	Opaque
	GIctr	Short rod	Raised	Regular	Smooth	Pink	Opaque
	GITiv	Short rod	Raised	Regular	Dull	Pink	Opaque
	GITv	Short rod	Raised	Regular	Dull	Pink	Opaque
	GLctr	Short rod	Raised	Regular	Smooth	Pink	Opaque
	GLTii	Short rod	Raised	Irregular	Rough	Pink	Opaque
	GLTv	Short rod	Raised	Regular	Smooth	Pink	Opaque
8	HGTii	Short rod	Raised	Regular	Smooth	Pink	Opaque
	HGTv	Short rod	Raised	Entire	Smooth	Pink	Opaque
	HGTvi	Short rod	Raised	Irregular	Rough	Pink	Opaque
	HITiii	Short rod	Raised	Regular	Smooth	Pink	Opaque
	HITiv	Short rod	Raised	Regular	Smooth	Pink	Opaque
	HLctr	Short rod	Raised	Entire	Smooth	Pink	Opaque
	HLctr	Short rod	Raised	Regular	Dull	Pink	Opaque
	HLTii	Short rod	Raised	Regular	Smooth	Pink	Opaque
	HLTiii	Short rod	Raised	Regular	Dull	Pink	Opaque
	HLTvi	Short rod	Raised	Regular	Smooth	Pink	Opaque

FG, fish gills at 0 weeks; FI, fish intestine at 0 weeks; FL, fish liver at 0 weeks; GG, fish gill at 4 weeks; GI, fish intestine at 4 weeks; GL, fish liver at 4 weeks; HG, fish gill at 8 weeks; HI, fish intestine at 8 weeks; HL, fish liver at 8 weeks; Ctr, experimental pond 1; Tii, experimental pond 2; Tiii, experimental pond 3; Tiv, experimental pond 4; Tv, experimental pond 5; Tvi, experimental pond 6

3.5 Antibiotic sensitivity test

The antibiotic sensitivity test for presumptive *Plesiomonas shigelloides* was interpreted using the recommended guidelines by the Clinical Laboratory Standard Institute (CLSI, 2020) and is shown in table 5. Presumptive *Plesiomonas shigelloides* that were observed showed 100% resistance to cefotaxime, and cefuroxime, which belongs to the antibiotic class of cephems, followed by meropenem 87.5%, which belong to the antibiotic class of Carbapenems, Ceftazidime 77.5%, which belong to the antibiotic class of cephems, Vancomycin 70% which belong to the antibiotic class of glycopeptides tetracycline 40% which belong to the antibiotic class of tetracycline, ceftriaxone 37.5% which belong to the antibiotic class of cephems, chloramphenicol 20% which belong to the antibiotic class of phenicols, ciprofloxacin 20% which belong to a class of fluoroquinolones, cotrimoxazole 17.5% which belong to a class of sulfonamides, gentamicin and amikacin 0% which belong to a class of aminoglycosides (Table 7).

3.6 Multiple antibiotic resistance phenotypes of *Plesiomonas shigelloides*

All presumptive *P. shigelloides* obtained from this study exhibited resistance to at least one antibiotic. Meanwhile, most of the isolates (85%) showed resistance to three (3) or more classes of antibiotics. Resistant to four (4) classes of antibiotics had the highest frequency of occurrence. Out of the seventeen isolates resisting the effect of four (4) classes of antibiotics, resistance to Tetracycline, Cephalosporins, Carbapenem and Glycopeptides (76.5%) was seen to be the highest compared to other phenotypes (Table 8).