

Table 7 Antimicrobial susceptibility profile for *Plesiomonas* isolate

Antibiotic class	Antibiotic tested	Disc code	P (µg)	Susceptibility pattern					
				Sensitive		Intermediate		Resistant	
				N	%	N	%	N	%
Fluoroquinolones	Ciprofloxacin	CIP	5	24	60	8	20	8	20
Tetracyclines	Tetracycline	TET	10	23	57.5	0	0	17	42.5
Sulfonamides	Cotrimoxazole	COT	25	28	70	5	12.5	7	17.5
Aminoglycosides	Gentamicin	GEN	10	40	100	0	0	0	0
	Amikacin	AMK	30	40	100	0	0	0	0
Cephems	Ceftazidime	CPZ	30	4	10	5	12.5	31	77.5
	Cefotaxime	CTX	30	0	0	0	0	40	100
	Cefuroxime	CRX	30	0	0	0	0	40	100
	Ceftriaxone	CTR	30	14	35	11	27.5	15	37.5
Phenicol	Chloramphenicol	CHR	10	26	65	5	12.5	9	22.5
Glycopeptides	Vancomycin	VAN	30	8	20	4	10	28	70
Carbapenems	Meropenem	MEM	10	2	5	3	7.5	35	87.5

Keys: N – number of isolates

Table 8 Multiple antibiotic-resistant phenotypes of *Plesiomonas shigelloides*

No of antibiotics	Resistance Pattern	Frequency
2	Ceph- carb	4
3	Ceph- Carb- phe	1
	Tet- Ceph- Carb	1
	Ceph- Gly- Carb	8
4	Sul- Ceph- Phe- Carb	1
	Flu- Phe- Gly- Carb	2
	Ceph- Gly- Carb- Phe	1
	Tet- Ceph- Carb- Gly	13
5	Tet- Ceph- Sul - Gly- Carb	4
	Tet- Ceph- Phe- Gly- Carb	2
6	Flu- Tet- Ceph- Phe- Gly- Carb	1

KEY: Ceph, Cephems; Gly, Glycopeptides; Carb, Carbapenems; Tet, Tetracyclines; Sul, Sulfonamides; Phe, Phenicol; Ami, Aminoglycosides; Flu, Fluoroquinolones

## 5 Discussion

The result of the study revealed that water quality parameters such as pH, temperature and total dissolved solids measured every two weeks show variation in the values obtained among these parameters and there was a significant difference ( $p < 0.05$ ) among the experimental ponds. The water quality values observed in this study are comparable to those reported by Olaifa and Bello (2011) who reported a temperature of 25°C~28°C and pH of 6-8.5 for *C. gariepinus* on feed supplemented with walnut leaves and onion bulb-based diet. This finding supports the report of Olusola and Olorunfemi (2017) who observed a temperature range of 28 °C~30 °C and pH of 5.70 - 6.19 for *C. gariepinus* fed guava (*Psidium guajava*) leaves and drumstick (*Moringa oleifera*) leaves extracts supplemented diet. This finding also aligns with the report of Omotayo et al. (2006). The value of total dissolved solid obtained was within the acceptable limit (2000 mg/L) by Food and Agriculture Organization, FAO (2013) for culture water.

Most microbes are transients in aquatic animals and may change rapidly with the intrusion of microbes coming from water and food. The growing demand for fish, and food safety is an essential element to consider since these animals can be vehicles for the transmission of various pathogens (Cortes-Sanchez et al., 2021). The result of this