

*shigelloides* however shows only 40 isolates obtained from the selective agar were round-ended, straight rod shapes which are motile (15 isolates from experimental pond water and 25 from fish tissues (Table 3 and Table 4).

### 3.4 Morphological and biochemical characteristics of isolates of experimental pond water and fish tissues

The 40 isolates further tested positive for oxidase, catalase, mannitol and citrate biochemical tests, they also tested negative for urease, methyl red and glucose biochemical tests (Table 5 and Table 6).

Table 2 Total bacteria counts of experimental pond water and fish tissues (gill, liver and intestine)

Weeks	Pond 1	Pond 2	Pond 3	Pond 4	Pond 5	Pond 6
Water sample						
0	5.70±0.00 <sup>a</sup>	6.00±0.01 <sup>a</sup>	5.60±0.02 <sup>a</sup>	6.10±0.03 <sup>a</sup>	6.00±0.02 <sup>a</sup>	6.00±0.01 <sup>a</sup>
2	7.00±0.02 <sup>a</sup>	7.00±0.03 <sup>a</sup>	7.00±0.01 <sup>a</sup>	7.00±0.06 <sup>a</sup>	6.90±0.09 <sup>a</sup>	7.00±0.03 <sup>a</sup>
4	6.40±0.05 <sup>a</sup>	6.80±0.05 <sup>a</sup>	6.70±0.03 <sup>a</sup>	6.80±0.08 <sup>a</sup>	6.60±0.07 <sup>a</sup>	6.70±0.02 <sup>a</sup>
6	6.20±0.03 <sup>ab</sup>	6.60±0.03 <sup>b</sup>	6.50±0.04 <sup>ab</sup>	6.00±0.03 <sup>ab</sup>	5.80±0.01 <sup>a</sup>	6.50±0.05 <sup>ab</sup>
8	6.50±0.07 <sup>a</sup>	6.70±0.06 <sup>a</sup>	6.30±0.02 <sup>a</sup>	6.60±0.05 <sup>a</sup>	6.30±0.03 <sup>a</sup>	6.60±0.07 <sup>a</sup>
Gill						
0	6.60±0.03 <sup>a</sup>	6.90±0.02 <sup>a</sup>	6.70±0.00 <sup>a</sup>	6.80±0.01 <sup>a</sup>	6.80±0.07 <sup>a</sup>	6.50±0.04 <sup>a</sup>
4	7.00±0.05 <sup>a</sup>	6.80±0.05 <sup>a</sup>	6.90±0.05 <sup>a</sup>	6.80±0.06 <sup>a</sup>	6.60±0.04 <sup>a</sup>	6.60±0.06 <sup>a</sup>
8	6.50±0.02 <sup>a</sup>	6.40±0.00 <sup>a</sup>	6.80±0.03 <sup>a</sup>	6.60±0.02 <sup>a</sup>	6.50±0.01 <sup>a</sup>	6.50±0.02 <sup>a</sup>
Liver						
0	6.90±0.04 <sup>a</sup>	6.70±0.03 <sup>a</sup>	6.80±0.05 <sup>a</sup>	6.80±0.2 <sup>a</sup>	6.70±0.05 <sup>a</sup>	6.60±0.01 <sup>a</sup>
4	6.80±0.02 <sup>a</sup>	6.90±0.07 <sup>a</sup>	7.00±0.08 <sup>a</sup>	6.70±0.2 <sup>a</sup>	6.60±0.03 <sup>a</sup>	6.50±0.04 <sup>a</sup>
8	6.50±0.00 <sup>a</sup>	6.90±0.09 <sup>a</sup>	6.90±0.04 <sup>a</sup>	6.70±0.2 <sup>a</sup>	6.60±0.06 <sup>a</sup>	6.40±0.05 <sup>a</sup>
Intestine						
0	6.50±0.01 <sup>a</sup>	6.90±0.03 <sup>a</sup>	6.80±0.07 <sup>a</sup>	6.60±0.2 <sup>a</sup>	6.50±0.00 <sup>a</sup>	6.50±0.01 <sup>a</sup>
4	6.80±0.02 <sup>a</sup>	6.70±0.01 <sup>a</sup>	7.00±0.09 <sup>a</sup>	6.80±0.2 <sup>a</sup>	6.70±0.04 <sup>a</sup>	6.60±0.02 <sup>a</sup>
8	6.80±0.04 <sup>a</sup>	6.80±0.00 <sup>a</sup>	6.80±0.03 <sup>a</sup>	6.80±0.2 <sup>a</sup>	6.70±0.03 <sup>a</sup>	6.80±0.05 <sup>a</sup>

Means (n =2) in the same row with similar superscripts are not significantly different ( $p > 0.05$ )

Table 3 Colony characteristics of isolates from experimental pond water

Weeks	Isolate code	Colony shape	Elevation	Edge	Surface	Pigmentation	Opacity
4	Dctr	Short rod	Raised	Regular	Smooth	Pink	Opaque
	Dctr	Short rod	Raised	Regular	Dull	Pink	Opaque
	DTii	Short rod	Raised	Regular	Smooth	Pink	Opaque
	DTii	Short rod	Raised	Entire	Smooth	Pink	Opaque
	DTiii	Short rod	Raised	Regular	Smooth	Pink	Opaque
	DTiv	Short rod	Raised	Entire	Smooth	Pink	Opaque
	DTv	Short rod	Raised	Regular	Smooth	Pink	Opaque
	DTvi	Short rod	Raised	Regular	Dull	Pink	Opaque
	DTvi	Short rod	Raised	Irregular	Rough	Pink	Opaque
	Ectr	Short rod	Raised	Regular	Smooth	Pink	Opaque
8	ETii	Short rod	Raised	Regular	Smooth	Pink	Opaque
	ETiii	Short rod	Raised	Regular	Smooth	Pink	Opaque
	ETiv	Short rod	Raised	Regular	Smooth	Pink	Opaque
	ETv	Short rod	Raised	Entire	Smooth	Pink	Opaque
	ETvi	Short rod	Raised	Regular	Dull	Pink	Opaque

Keys: D, water sample at week 4; E, water sample at week 8; Ctr, experimental pond 1; Tii, experimental pond 2; Tiii, experimental pond 3; Tiv, experimental pond 4; Tv, experimental pond 5; Tvi, experimental pond 6; SR, Short rod