Table 3 Zootechnical and economic parameters obtained with the experimental systems

Zootechnical parameters	Experimental regimes	
	T0	T1
Pmi (g)	4.40± 0.01a	4.39± 0.01a
Pmf (g)	140.30± 5.71a	139.68± 1.26a
TS (%)	98.33± 3.11a	93.00± 0.66b
IC	1.11± 0.04a	1.01± 0.02b
CEP	1.01± 0.24a	1.9± 0.05b
TCS (%/d)	4.23± 0.02a	4.10± 0.01a
PGP (%)	3091.14± 131.61a	3081.70± 23.85a
PI	50.99± 2.11b	61.18± 0.84a
Economic parameters		
Cost per kg (GNF/Kg)	-	5 265
Manufacturing costs per kg of feed (GNF/Kg)	-	2 860
Total cost per kg of feed (GNF/Kg)	15 052	8 125
Total production cost per kg of fish (GNF/Kg)	16 708	8 206
Selling price per kg of fish (GNF/Kg)	22 578	22 578
Profit (GNF/Kg)*	5 875	14 373

Table caption: T0= Control food, T1= Local food. Values with the same letters on the same line are not significantly different ($p>0.05$). Values are expressed as mean± standard deviation. * Prices are in GNF and are based on exchange rates in November 2025. Labour and processing costs were included by adding 20% to the ingredient costs (Azaza et al., 2006).

As for nutritional requirements, the crude protein content of the diet tested in this study (40%) is within the range of optimal requirements for catfish *(Clarias gariepinus, Heterobranchus bidorsalis and Heteroclarias)*, which is between 40% and 42.5% (Monebi and Ugwumba, 2013). Several studies have shown that total replacement of fish meal by maggot or earthworm meal reduced the growth rate of fish such as *Heterobranchus longifilis* (Sogbesan et al., 2007), *Heteroclarias* (Monebi and Ugwumba, 2013) and *Clarias gariepinus* (Djissou et al., 2016). The results of these studies contradict our results, which show good use of the local feed with a better consumption index (1.01) and ingested protein (61.18), in addition to the good growth performance obtained. Meeting the essential amino acid requirements of *C. gariepinus* also contributed to this performance. In fact, when formulating fish feed, meeting the growth requirements of fish depends not only on the quantity of protein provided by the feed, but also on its quality, i.e. the nature of the amino acids provided, particularly the essential ones. In our work, the results obtained are therefore explained by the quality of the feed (protein and essential amino acids) which satisfies the needs of *C. gariepinus* for good growth. Furthermore, Djissou et al. (2016; 2017) showed that fish meal can be completely replaced by a combination of *Azolla filiculoides*, brewer's yeast, maggot and *Dialium guineense* leaf in the diet of *Oreochromis niloticus* with good growth performance. However, when the essential amino acid composition of the feed does not meet the needs of the fish, this influences the net energy value of the proteins and increases the metabolism of the fish, as well as polluting the environment with nitrogenous waste (Medale and Kaushik, 2009).

It should be noted that the biological value of the protein source depends on its essential amino acid profile (Table 2) as well as its digestibility. The values of CEP and PGP (Table 3) recorded with the test feed are due not only to the protein sources used as total replacements for fish meal (earthworm, maggot and brewer's yeast), which are rich in EAA (Adesina, 2012), but also to the diet of *C. gariepinus*. The PER obtained are generally lower than those obtained by Nyinawamwiza (2007), who completely replaced fish meal with groundnut, soybean and groundnut meal in the diet of *C. gariepinus*. Nevertheless, the local feed would be well digestible for the fish in view of the feed utilisation parameters obtained.

An optimal profile of essential amino acids is a prerequisite for fish growth (Medale et al., 2013). The feed tested in this study is of high quality in protein value because it contains all the EAAs with higher values with the exception of methionine (Djissou et al., 2020). In fact, lysine and methionine are the first limiting EFAs in many fish feeds,