

家禽加工残渣の活用によるミルクフィッシュ用魚粉削減飼料の開発

Utilization of poultry by-product meal as an effective alternative to fish meal in aquaculture feed for milkfish *Chanos chanos*

ミルクフィッシュ養殖用飼料原料として家禽加工残渣を12%配合することにより、ミルクフィッシュ養殖用飼料中の魚粉を75%、魚油を15%削減できる。本飼料を用いることで、近年高騰する魚粉及び魚油の使用量が削減され、養殖魚の成長率や化学成分含量、味わいに影響を及ぼすことなく、飼料コスト軽減による水産養殖業者の経営改善が期待できる。

To improve profitability in aquaculture industries, we developed a feed substitute for milkfish by reducing dependency on fish-meal/fish-oil, whose prices are rising because of the recent stagnation in capture fisheries production. Replacing fish-meal/fish-oil feeds with 12% poultry by-products reduced fish-meal and fish-oil dependency by 75% and 15%, respectively, without deteriorating the growth performance and the quality of the fish.



図1 収穫されたミルクフィッシュ (*Chanos chanos*) 尾又長29.8cm  
Fig. 1. Harvested milkfish (*Chanos chanos*) 29.8 cm fork length

表1 実験用飼料の家禽加工残渣・魚粉・魚油配合率  
Table 1. Composition of the experimental feeds

	CTF	LPF	HPF
<b>Poultry by product</b>	0%	8%	12%
<b>Fish meal</b>	20%	10% (-50%)	5% (-75%)
<b>Fish oil</b>	4.45%	4.00% (-10%)	3.78% (-15%)

( )内は魚粉・魚油の削減率を示す。CTF: 対照飼料、LPF: 低家禽加工残渣飼料、HPF: 高家禽残渣飼料  
The parenthesis indicates reduction rate of fish meal and fish oil. CTF: Control feed, LPF: Low poultry by-product feed, HPF: High poultry by-product feed

A. Growth performance

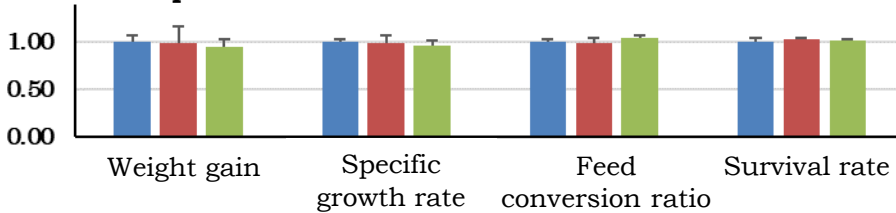
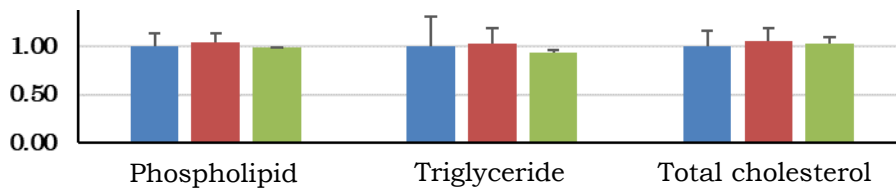


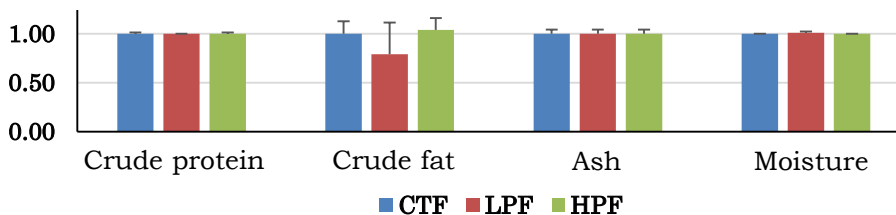
図2 ミルクフィッシュの成長、収穫時の品質に及ぼす実験飼料の効果  
Fig.2. Growth performance and quality of harvested milkfish fed with experimental feeds

B. Plasma components of harvested fish



(CTF区の値を1.00とした場合の相対値)  
実験開始時尾数: 1483±1尾、飼育期間: 84日、平均水温: 28.3 ± 1.2℃  
A 成長・生残、B 収穫時の血漿中化学成分含量 (N=10x2 反復)、  
C 収穫時の筋肉成分含量 (N=15x2 反復)

C. Proximate composition of dorsal muscle from harvested fish



(Relative values when each value at CTF = 1.00)  
Initial number of experimental fish: 1483±1, Culture period: 84 days, Average water temperature: 28.3±1.2℃