



Determination of protein digestibility rate in vitro using pH-stat

OPTIFEED SERVICES have been designed and developed by TETHYS AQUACULTURE Limited in collaboration with Associate Professor Katerina Moutou in University of Thessaly



Services for Fish Farmers		ADVANTAGES	REQUIREMENTS	Time for Result Delivery (per Sample)	cost per sample (Does not include VAT 23%)			DELIVERABLES
HATCHERIES	Control and Validation of Weaning Diets in relation to Protein Digestibility	Validation of fish feeds and batches of feeds Higher Negotiation power	30g of target fish feed Indication of fish species and mean weight Shipment of sample of larvae that will receive the target feed is recommended	5 Days	Samples 1-10 1100€	Samples 11-20 950€	Samples >21 850€	Curves and equations indicating the change in dietary protein digestibility in relation to the quantity of the target fish feed present in the digestive tract, the species and developmental stage as well as the selected temperature and salinity. Activity level of Total Alkaline proteases is also determined in the case of larvae sample shipment.
	Validation of Juvenile batches in relation to their capacity to digest proteins	Juvenile Quality Control regarding their capacity for fast growth Higher Negotiation power	20 juvenile fish (deep frozen)	5 Days	Samples 1-10 150€	Samples 11-20 120€	Samples >21 95€	Activity levels of Total Alkaline Proteases, Trypsin and Chymotrypsin for each juvenile batch Higher enzyme activity implies higher protein availability for growth
	Control and Validation of fish feed batches in relation to Protein Digestibility	Validation of fish feeds and batches of feeds Higher Negotiation power	30g of target fish feed Indication of fish species and mean weight Shipment of sample of fish that will receive the target feed is recommended	2 Days	Samples 1-10 480€	Samples 11-20 400€	Samples >21 330€	Comparative analysis of protein digestibility rates in any fish species specified, at standardized feed quantity/ enzyme ratios and temperature and salinity conditions. Parameters of your selection: fish species, developmental stage, temperature and salinity ranges.
FISH FARMS	Optimization of feeding scheme	Tailored feeding rates Lower operational cost	30g of fish feed to be used Specification of rearing parameters to be tested (see below) Shipment of sample of fish that will receive the target feed is recommended	14 Days	Samples (Fish Batch fed certain fish feed) 1-10 2300€	Samples (Fish Batch fed certain fish feed) 11-20 2100€	Samples (Fish Batch fed certain fish feed) >21 1800€	Determination of feeding frequency of a given fish feed, fish species, size, temperature range and salinity. Curves and equations indicating the change in protein digestibility rate of the fish feed in relation to quantity in the digestive tract. Parameters of your selection: fish species, developmental stage, temperature and salinity range.
Services for Fish Feeds Companies		ADVANTAGES	REQUIREMENTS	Time for Result Delivery (per Sample)	cost per sample (Does not include VAT)			DELIVERABLES
RAW MATERIALS	Control and Validation of Raw materials (Plant and Animal Origin) in relation to their Protein digestibility	Validation of Raw materials Screen of a wide range of raw materials to select for use Increased Negotiating Power	30g of raw material in the form that will be included in the feed (Meal, extruded, enzymatically treated etc) Specification of parameters to be tested	5 Days	Samples 1-10 1100€	Samples 11-20 950€	Samples >21 850€	Curves and equations indicating the change in protein digestibility rate of raw material in relation to quantity present in the digestive tract. It can be applied to any fish species specified, at standardized temperature and salinity conditions. Parameters of your selection: fish species, developmental stage, temperature and salinity ranges.
	Control and Validation of Different varieties of Plant Raw materials in relation to their Protein Digestibility	Validation of different Varieties of candidate plant Raw materials Improved Fish feed quality Increased Negotiating Power	30g of raw material in the form that will be included in the feed (Meal, extruded, enzymatically treated etc) Specification of parameters to be tested	2 Days	Samples 1-10 480€	Samples 11-20 400€	Samples >21 330€	Comparative analysis of protein digestibility rates in any fish species specified, at standardized feed quantity/ enzyme ratios and temperature and salinity conditions. Parameters of your selection: fish species, developmental stage, temperature and salinity ranges.
	Digestion Inhibitors Content in Raw Materials "Quick Validation of Raw materials (Plant and Animal Origin) in relation to their Protein digestibility"	Improved Fish feed quality Minimum impact of inhibitors on digestibility Increased Negotiating Power	30g of raw material in the form that will be included in the feed (Meal, extruded, enzymatically treated etc) Specification of fish Species	2 Days	Samples 1-10 450€	Samples 11-30 350€	Samples >31 250€	Percentages of Trypsin and Chymotrypsin activity inhibition in relation to a) the target raw material, and b) the fish species at 25oC. Potential to calculate the maximum quantity of the raw material that can be included in the fish feed without significant ramifications to the digestion performance of the selected fish species. Potential to compare and contrast different fish species in order to select the fish species that responds best to the target raw material.
FISH FEEDS	Digestion Inhibitors Content in Commercial Fish feed	Improved Fish feed quality Minimum impact of inhibitors on digestibility Increased Negotiating Power	30g of the fish feed Specification of fish Species	2 Days	Samples 1-10 450€	Samples 11-30 350€	Samples >31 250€	Percentages of Trypsin and Chymotrypsin activity inhibition in relation to a) the target fish feed quantity, and b) the fish species at 25oC. Potential to compare and contrast different fish species in order to select the fish species that responds best to the target fish feed.
	Control and Validation of Produced fish feed batches in relation to their Protein Digestibility	Validation of fish feeds and batches of feeds Follow-up of production quality Higher Negotiation power	30g of target fish feed Specification of fish species	2 Days	Samples 1-10 480€	Samples 11-20 400€	Samples >21 330€	Comparative analysis of protein digestibility rates in any fish species specified, at standardized feed quantity/ enzyme ratios and temperature and salinity conditions. Parameters of your selection: fish species, developmental stage, temperature and salinity ranges.
	Control and Validation of Fish feeds in relation to their Protein digestibility according to fish species, age and environmental conditions	Validation of fish feeds under specific rearing conditions Improved fish feed quality Improved market positioning Increased Competitiveness	30g of target fish feed Specification of Fish Species and rearing conditions	14 Days	Samples (Feed Batch) 1-10 2300€	Samples (Feed Batch) 11-20 2100€	Samples (Feed Batch) >21 1800€	Determination of feeding frequency of a given fish feed, fish species, size, temperature range and salinity. Curves and equations indicating the change in protein digestibility rate of the fish feed in relation to quantity in the digestive tract. Parameters of your selection: fish species, developmental stage, temperature and salinity range.
	Fast Validation of experimental fish feeds	Fast Validation of experimental formulas of fish feeds Low budget feed development Screen for multiple use in different fish species Increased Competitiveness	30g of target fish feed Specification of Fish Species	3 Days	Samples 1-10 680€	Samples 11-20 600€	Samples >21 530€	Comparative analysis of protein digestibility rates in any fish species specified, at standardized feed quantity/ enzyme ratios and temperature and salinity conditions. Parameters of your selection: fish species, developmental stage, temperature and salinity ranges.
	Control and Validation of Fish Feeds in relation to Protein Digestibility	Validation of fish feeds of feeds Higher Negotiation power	30g of target fish feed Indication of fish species and mean weight	5 Days	Samples 1-10 1100€	Samples 11-20 950€	Samples >21 850€	Curves and equations indicating the change in dietary protein digestibility in relation to the quantity of the target fish feed present in the digestive tract, the species and developmental stage as well as the selected temperature and salinity.