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Exogenous proteinases recovered from fishery waste as feed supplement for Nile tilapia (*Oreochromisniloticus*)

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The main goal of this research was to analyze in vitro compatibility of Nile tilapia (Oreochromisniloticus) digestive proteinases and enzymes recovered from species comprising fishery waste as Pleoticusmuelleri, Artemesialonginaris and Patagonotothenramsayi. It evaluated the use of exogenous enzymes as feeds supplements to increase digestion efficiency in Nile tilapia fingerlings and juveniles (3.5 ± 0.11 g and 11.6 ± 1.5 g, respectively). We successfully have obtained proteinases from fishery waste as source of exogenous enzymes, demonstrating thatproteinases can be easily extracted and employed as food additives to enhance the digestive process. P. muelleriand A. longinaris enzymes had more activity of acid and alkaline proteinases than P. ramsayi. SDS-PAGE gels demonstrated that Nile tilapia digestive proteinases keep their activity when combined with each exogenous proteinase. Additionally, exogenous enzymes varied in their ability to enhance hydrolysis of different feed ingredients. In conclusion, P. muelleri by-products are the best candidates to be employed as feed supplements for Nile tilapia juveniles. Enzymes from this by-product did not affect the activity and integrity of fish digestive enzymes, improved the hydrolysis of several ingredients, and maintained its activity after being exposed to high temperatures and acid pHs. Also we suggest supplementing first food of the day with exogenous enzymes to obtain their maximum activities. Fishery industry waste has a great biotechnological potential as source of proteinases. Our findings are applicable to other places where O. niloticus is raised utilizing local fishery waste, and also to different cultured species.

Biography

Yamila Rodriguez has completed herbiology bachelor's degreein 2013 from Mar del Plata National University, Argentina. During 2011 Yamila travel to Sarasota, USA, and spent 10 months working on her senior thesis project in Mote Marine Laboratory. Currently, she is a doctoral student from Mar del Plata National University with Dr. AnaliaFernández-Gimenez as her doctoral thesis director. Her research is focus on developing alternative proteinsextracted from fishery waste for aquaculture feed improvement. Yamilawon a fellowship from CONICET (National Council of Scientific and Technical Research, Argentina Government) to support her doctoral studies.

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