Manuscript ID	EJABF-2002-1548 (R2)
Manuscript Title	Immunogenization of Heat-Killed Vaccine Candidate from Aeromonas hydrophila in Catfish (Pangasius hypophthalamus) using Strain of Banjar, South Kalimantan, Indonesia
Manuscript Type	Original Article
Main Subjects	Aquaculture of Aquatic Fauna - Offered Subjects: Fish Disease
Abstract	Aeromonas hydrophila often attacks cultured catfish and causes a Motile Aeromonad Septicemia (MAS) disease outbreak in South Kalimantan, Indonesia. Deaths from A.hydrophila attacks could reach 100% within 3-7 days so that prevention needs to done through vaccination. This study aimed to examine the potential immunogenicity of 6 heat-killed A.hydrophila vaccine candidates, a strain of Banjar, South Kalimantan, Indonesia. A.hydrophila strains obtained from infected catfish in aquaculture ponds around the Banjar District, South Kalimantan, Indonesia. From 10 fish infected with MAS, obtained 14 isolates of bacteria, ie, 8 isolates (AGC-1, AGC-2, AGC-3, AGC-4, AGC-6, AKC-2, AKC-3, and AKC-5) of Sungai Batang village, and 6 isolates (AGC-8, AGC-9, AKC-7, AKC-8, AKC-9, AKC-10) from Cindai Alus village. AGC signifies Aeromonas isolated from the gills, and AKC means Aeromonas isolated from the kidney. The antigen that used as a candidate for the heat-killed A.hydrophila vaccine made by inactivation through a heating process at 100 oC for 60 minutes. Research parameters include antibody titers and cross-reaction assays, as well as water quality parameters, including water temperature, pH, and dissolved oxygen levels. The results showed that antigens from AGC-2 and AGC-8 strains had high immunogenicity because they could increase antibody titers compared to other strains and controls. The antibody titer in catfish, a week after being vaccinated with AGC-2 antigen was 106.67, while AGC-8 was 149.33. Two weeks after booster vaccination, antibody titers in catfish vaccinated with both antigens were increasing and showing the same value (1706,67). The results of the cross-reaction assay showed that the antigens from the AGC-2 and AGC-8 strains were able to cross-react with strain AGC-1, AKC3, AKC-5, but unable to cross-react with AKC-7, so that AGC-2 and AGC-8 could be recommended as vaccine candidates for MAS disease in South Kalimantan, Indonesia.
Keywords	Aeromonas hydrophila, Antibody, Immunogenicity, Pangasius hypophthalamus, vaccine
Comments	Thank you for the opportunity. We have fixed it according to the reviewer's instructions

Authors

#	Name	Email Address	Degree	Position	Phone	Country	Affiliation
1	Olga, Olga*	olgafikan@gmail.com	PhD Candidate	Associate Professor	+6289646737855	Indonesia	Faculty of Fisheries and Marine, Lambung Mangkurat University, Banjarbaru, South Kalimantan, Indonesia and Postgraduate Program, Faculty of Fisheries and Marine Science, Brawijaya University, Malang, East Java, Indonesia
2	Aisiah, Siti	sitiaisiah@ulm.ac.id	PhD	Assistant Professor	+62 813-8146-9256	Indonesia	Department of Aquaculture, Faculty of Fisheries and Marine Sciences, Lambung Mangkurat University, Banjarbaru, South Kalimantan, Indonesia
3	Tanod, Wendy Alexander	tanodwendy@gmail.com	PhD	Assistant Professor	+6285240685886	Indonesia	Institute of Fisheries and Marine (Sekolah Tinggi Perikanan dan Kelautan), Palu, Central Sulawesi, Indonesia
4	Risjani, Yenny	risjani@ub.ac.id	PhD	Professor	+62 877-7808-5205	Indonesia	Faculty of Fisheries and Marine Science, Brawijaya University, Malang, East Java, Indonesia
5	Nursyam, Happy	happy_nsy@ub.ac.id	PhD	Professor	+62 858-1116-1124	Indonesia	Faculty of Fisheries and Marine Science, Brawijaya University, Malang, East Java, Indonesia
6	Maftuch, Maftuch	maftuch@ub.ac.id	PhD	Professor	+62 823-3810-8441	Indonesia	Faculty of Fisheries and Marine Science, Brawijaya University, Malang, East Java, Indonesia

Submit Date	2020-02-13 08:20:46
Revise Date	2020-03-29 21:00:14

Comments for Author	
Current Status	Accepted (Scientific)
Modify Date	2020-07-16 00:54:23

Related Files

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4	Research Highlights	2olga EJABF Copyright release form (2).pdf	230.85 KB		2020-02-13
5	Manuscript Main File	ok edit revisi final EJABF.docx	1008.08 KB	Revision	2020-03-29
Manuscript Acceptance Receipt					
6	Manuscript Acceptance Receipt	EJABF-Templat.doc	670 KB		2020-03-29