

Research No.: 22		F-6 ODA Loan Joint Research	Date: 26/Oct/2019
1	General Title	Biochemistry and pharmaceutical science in aquaculture and fisheries	
2	Core Members	<p>Can Tho University: Tran Thi Tuyet Hoa (Project Leader), Pham Minh Duc, Bui Thi Bich Hang, Nguyen Thi Thu Hang, Dang Thuy Mai Thy, Huynh Truong Giang, Tran Thi My Duyen, Nguyen Trong Tuan, Dai Thi Xuan Trang, Le Thanh Phuoc, Nguyen Phuc Dam, Ngo Quoc Luan, Luu Thai Danh, Doan Van Hong Thien</p> <p>Japanese Universities: Kaeko Kamei (KIT), Kenji Kanaori (KIT)</p>	
3	Duration	Jan., 2018 – Dec., 2020 (3 years)	
4	Main Objectives	<p>Develop natural bioactive compounds in order to:</p> <ol style="list-style-type: none"> Enhance of fish/ shrimp immune responses Replace antibiotics/ chemicals in the prevention and treatment of aquatic animal diseases 	
5	Focal Points	<div> <p>1. Screening bioactive compounds to apply in drug production for the prevention and treatment of aquatic animal diseases</p> <div> <p>Plant extracts preparation</p> <p>Plant collection → Powdered plant → Mixture → Evaporation → Crude extracts</p> <p>45 plant extracts were identified</p> </div> <div> <p>In vitro antimicrobial tests</p> <p>Paper disc preparation → Impregnated paper disc → Spreading bacteria → Placing impregnated disc → Interpreting result</p> <p>6; 15; 14 and 6 plant extracts showed high antimicrobial activity against 4 aquatic animal pathogens including <i>A. hydrophila</i>, <i>E. ictaluri</i>, <i>S. agalactiae</i> and <i>V. parahaemolyticus</i>, respectively</p> </div> <div> <p>Chemical analysis and identification</p> <p>Crude extracts → Extracts showed high antimicrobial activity → Chemical analysis → Component identification</p> <p>2/20 pure compounds were identified</p> </div> <div> <p>In vitro antimicrobial tests → Acute toxicity test</p> </div> </div> <div> <p>2. Assessing the positive impact of natural bioactive compounds in aquaculture</p> <div> <p>Evaluating the ability to</p> <ul style="list-style-type: none"> Enhance immunological parameters and growth performance Enhance the resistance to pathogens in aquatic animals </div> <div> <p>Evaluating the ability of plant extracts as immunostimulants and growth enhancer on striped catfish were done, other 3 aquatic animals are in progress</p> </div> <div> <p>Developing a process to supplement products with bioactive compounds in feed for some aquatic animals</p> <p>Plant extract → Mixing → Fish feed → Feeding → In vivo test → Challenging</p> </div> <div> <p>Evaluating the effectiveness of bioactive compound products in farms</p> </div> </div> <div> <p>Program outputs</p> <div> <p>1 scientific report</p> <p>20 plant species & extract identified</p> <p>2 development technology & application technology</p> </div> <div> <p>Publications</p> <p>3/8 in Vietnamese journal</p> <p>1/4 in international journal</p> <p>0/1 book</p> </div> <div> <p>HUMAN RESOURCES</p> <p>2/2 PhD</p> <p>9/12 MSc</p> <p>10/15 BSc</p> <p>2/2 short trainings</p> <p>0/60 trainee</p> </div> </div>	
6	Comments	This research still continues towards finalizing program outputs.	