

## Host-derived probiotics *Enterococcus casseliflavus* improves resistance against *Streptococcus iniae* infection in rainbow trout (*Oncorhynchus mykiss*) via immunomodulation - DTU Orbit (08/11/2017)

### Host-derived probiotics *Enterococcus casseliflavus* improves resistance against *Streptococcus iniae* infection in rainbow trout (*Oncorhynchus mykiss*) via immunomodulation

The present study evaluated the benefits of dietary administration of host-derived candidate probiotics *Enterococcus casseliflavus* in juvenile rainbow trout *Oncorhynchus mykiss*. Experimental diets were prepared by incorporating the microorganisms in the basal feed at 3 inclusion levels (i.e. 107 CFU g<sup>-1</sup> of feed [T1], 108 CFU g<sup>-1</sup> of feed [T2], 109 CFU g<sup>-1</sup> of feed [T3]). The probiotic feeds were administered for 8 weeks, with a group fed with the basal diet serving as control. The effects on growth performance, gut health, innate immunity and disease resistance were evaluated. Results showed that growth performance parameters were significantly improved in T2 and T3 groups. Activities of digestive enzymes such as trypsin and lipase were significantly higher in these two groups as well. Gut micro-ecology was influenced by probiotic feeding as shown by the significant increase in intestinal lactic acid bacteria and total viable aerobic counts in T2 and T3. Humoral immunity was impacted by dietary probiotics as total serum protein and albumin were significantly elevated in T3. The levels of serum IgM significantly increased in all probiotic fed groups at week 8; with the T3 group registering the highest increment. Respiratory burst activity of blood leukocytes were significantly improved in T2 and T3. Hematological profiling further revealed that neutrophil counts significantly increased in all probiotic fed groups. Challenge test showed that probiotic feeding significantly improved host resistance to *Streptococcus iniae* infection, specifically in T2 and T3 where a considerable modulation of immune responses was observed. Taken together, this study demonstrated *E. casseliflavus* as a potential probiotics for rainbow trout with the capability of improving growth performance and enhancing disease resistance by immunomodulation

#### General information

State: Published

Organisations: National Institute of Aquatic Resources, Section for Aquaculture, Sari University of Agricultural Sciences and Natural Resources, Shahid Chamran University of Ahvaz, Agricultural Research Education and Extension Organization, Temasek Polytechnic

Authors: Safari, R. (Ekstern), Adel, M. (Ekstern), Lazado, C. C. (Intern), Caipang, C. M. A. (Ekstern), Dadare, M. (Ekstern)

Pages: 198-205

Publication date: 2016

Main Research Area: Technical/natural sciences

#### Publication information

Journal: Fish and Shellfish Immunology

Volume: 52

ISSN (Print): 1050-4648

Ratings:

BFI (2017): BFI-level 1

Web of Science (2017): Indexed Yes

BFI (2016): BFI-level 1

Scopus rating (2016): CiteScore 3.36 SJR 1.114 SNIP 1.16

Web of Science (2016): Indexed yes

BFI (2015): BFI-level 1

Scopus rating (2015): SJR 1.268 SNIP 1.171 CiteScore 3.19

Web of Science (2015): Indexed yes

BFI (2014): BFI-level 1

Scopus rating (2014): SJR 1.138 SNIP 1.089 CiteScore 2.92

Web of Science (2014): Indexed yes

BFI (2013): BFI-level 1

Scopus rating (2013): SJR 1.001 SNIP 1.149 CiteScore 3.11

ISI indexed (2013): ISI indexed yes

Web of Science (2013): Indexed yes

BFI (2012): BFI-level 1

Scopus rating (2012): SJR 1.151 SNIP 1.174 CiteScore 3.02

ISI indexed (2012): ISI indexed yes

Web of Science (2012): Indexed yes

BFI (2011): BFI-level 1

Scopus rating (2011): SJR 1.196 SNIP 1.265 CiteScore 3.52

ISI indexed (2011): ISI indexed yes

Web of Science (2011): Indexed yes  
BFI (2010): BFI-level 1  
Scopus rating (2010): SJR 1.131 SNIP 1.056  
Web of Science (2010): Indexed yes  
BFI (2009): BFI-level 1  
Scopus rating (2009): SJR 0.96 SNIP 1.101  
Web of Science (2009): Indexed yes  
BFI (2008): BFI-level 2  
Scopus rating (2008): SJR 0.952 SNIP 1.062  
Scopus rating (2007): SJR 0.842 SNIP 1.378  
Web of Science (2007): Indexed yes  
Scopus rating (2006): SJR 0.954 SNIP 1.298  
Web of Science (2006): Indexed yes  
Scopus rating (2005): SJR 0.789 SNIP 0.861  
Web of Science (2005): Indexed yes  
Scopus rating (2004): SJR 0.835 SNIP 1.148  
Scopus rating (2003): SJR 0.699 SNIP 1.12  
Web of Science (2003): Indexed yes  
Scopus rating (2002): SJR 0.733 SNIP 1.244  
Web of Science (2002): Indexed yes  
Scopus rating (2001): SJR 0.664 SNIP 0.961  
Web of Science (2001): Indexed yes  
Scopus rating (2000): SJR 0.764 SNIP 1.079  
Web of Science (2000): Indexed yes  
Scopus rating (1999): SJR 1.189 SNIP 1.068

Original language: English

DOIs:

10.1016/j.fsi.2016.03.020

Source: PublicationPreSubmission

Source-ID: 122775061

Publication: Research - peer-review › Journal article – Annual report year: 2016