Isolasi dan Identifikasi *Marine Yeast* sebagai Kandidat Probiotik pada Ikan Kerapu Cantang

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Intisari

Kerapu cantang merupakan salah satu komoditas perikanan unggulan baru di Indonesia. Biaya pakan yang tinggi menjadi salah satu masalah yang dihadapi pada usaha budidaya ikan termasuk kerapu cantang. Probiotik *yeast* merupakan salah satu solusi untuk masalah tersebut. Penelitian ini bertujuan untuk mengetahui potensi *marine yeast* sebagai kandidat probiotik pada ikan kerapu cantang. *Yeast* diisolasi dari usus kerapu lumpur (*Epinephelus coioides*). Identifikasi molekuler dilakukan dengan analisis sekuen 18s rDNA dan ITS (*internal transcribed spacer*) rDNA. Seleksi untuk menentukan isolat yang akan diberikan pada ikan dilakukan dengan menguji aktivitas enzim pencernaan α-amilase, protease dan lipase *yeast*. Kultur cair *yeast* dengan kepadatan 7×10^7 CFU/ml diberikan pada kerapu cantang secara oral sebanyak 100 µl .Uji viabilitas dilakukan dengan re-isolasi *yeast* dari usus kerapu cantang dan amplifikasi sekuen ITS rDNA dengan primer spesifik. Sembilan isolat *yeast* digunakan dalam penelitian ini, 4 isolat hasil isolasi dari usus kerapu lumpur dan 5 isolat merupakan koleksi laboratorium. Hasil identifikasi molekuler dari 9 isolat *yeast* didapatkan 5 spesies berbeda. Dua jenis *yeast* hasil seleksi yaitu *Lodderomyces elongisporus* dan *Candida orthopsilosis* positif memiliki aktivitas enzim pencernaan α-amilase. Hasil uji pemberian *yeast* pada kerapu cantang menunjukkan bahwa *L. elongisporus* tidak mampu hidup di dalam saluran pencernaan. *C. orthopsilosis* mampu hidup di dalam saluran pencernaan hingga hari ke-9 pengamatan. *C. orthopsilosis* tidak berpotensi menjadi kandidat probiotik karena tidak mampu memberikan efek positif pada aktivitas enzim pencernaan kerapu cantang serta kemungkinan sifat patogen pada jenis *yeast* tersebut.

Kata kunci: identifikasi molekuler, isolasi, kerapu cantang, *marine yeast*, probiotik

Isolation and Molecular Identification of Marine Yeast as Probiotic Candidate on Cantang Grouper

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Abstract

Cantang grouper is one of the new prime commodities in Indonesia. High feed cost is one of the problems faced in aquaculture industry, including for cantang grouper fish. *Yeast* as a probiotic is among the solutions for such problem. This study is aimed to determine the effect of *yeast* application to digestive enzyme's activity in cantang grouper. *Yeast* was isolated from the intestines of orange-spotted grouper (*Epinephelus coioides*). Molecular identification was performed by 18s rDNA and ITS (*internal transcribed spacer*) rDNA sequence analysis. Selection process to determine which isolate to be administered to the fish was performed by measuring extracelular amylase, protease, and lipase enzyme activity of the *yeast*. As many as 100 µl of 7×10^7 CFU/ml *yeast* was administered orally to cantang grouper. Viability test was performed by reisolating the *yeast* from cantang grouper's intestines and ITS rDNA sequence amplification using specific primer. Nine *yeast* isolate was used in this study, 4 of which was isolated from orange-spotted grouper's intestines, and another 5 was the laboratory's collection. Extracelular amylase activity were observed on the selected *yeasts*, i.e., *Lodderomyces elongisporus* and *C. orthopsilosis*. The result of yeast administration to cantang grouper showed that *L. elongisporus* could not survive living on the digestive tract. Whereas *C. orthopsilosis* could survive living on the digestive tract up to 9 days of observation. *C. orthopsilosis* has no potential as a probiotic candidate, since there was no significant effect on cantang grouper's digestive enzyme observed and this type of yeast probably even pathogenic.

Keywords: cantang grouper, *yeast* isolation, marine yeast, molecular identification, probiotic