

RINGKASAN

Probiotik merupakan mikroorganisme yang dapat memperbaiki mikroekologi usus yang berdampak positif terhadap kesehatan inang. Mikroorganisme sebagai kandidat probiotik salah satunya adalah khamir. Khamir sebagai kandidat probiotik mampu mensekresi enzim yaitu enzim fitase yang diaplikasikan pada pakan unggas untuk menghidrolisis asam fitat dalam pakan. Khamir penghasil fitase telah diisolasi oleh BPTBA-LIPI Yogyakarta asal makanan fermentasi tradisional Indonesia yaitu tempe dan *gathot*. Pengujian kandidat probiotik khamir fitase bertujuan mengevaluasi karakteristik kandidat probiotik isolat khamir penghasil fitase meliputi aktivitas antimikroba terhadap bakteri patogen saluran pencernaan unggas, resistensi terhadap antibiotik Penisilin, Streptomisin, dan Eritromisin, serta mengetahui viabilitas khamir penghasil fitase terhadap kondisi asam (pH 2 dan pH 3), kondisi lambung (pepsin), dan garam empedu pada saluran pencernaan. Penelitian ini menggunakan metode eksperimental, Rancangan Acak Kelompok (RAL) secara faktorial pada masing-masing uji. Hasil penelitian dianalisis menggunakan *analysis of variance* (ANOVA) dengan tingkat kesalahan 5%.

Hasil yang diperoleh pada penelitian ini yaitu kedua isolat khamir TKd3 dan GF1 memiliki aktivitas antimikroba terhadap bakteri patogen dan resisten terhadap antibiotik Streptomisin, Penisilin, dan Eritromisin. Viabilitas isolat khamir penghasil fitase TKd3 dan GF1 memiliki Persentase tertinggi pada pengujian terhadap asam lambung, dan memiliki Persentase terendah dalam pengujian garam empedu. Viabilitas tertinggi diperoleh pada isolat khamir GF1 dengan Persentase 218,58% pada paparan asam lambung selama 60 menit, sedangkan viabilitas terendah diperoleh pada isolat khamir TKd3 pada paparan garam empedu selama 180 menit dengan Persentase 5,78%. Kedua isolat khamir uji TKd3 dan GF1 tidak dapat dijadikan kandidat probiotik pada unggas.

Kata kunci: Fitase, Khamir, Probiotik.

SUMMARY

Probiotics are microorganisms which improve intestinal microecology to give positive impact on host health. One of the microorganisms as probiotic candidates is yeast. Yeasts as probiotic candidates are potential to secrete enzymes. One of enzyme which produce by yeast is phytase enzyme which can applied for poultry feed to hydrolyze phytic acid in feed. Yeasts producing phytase has been isolated by BPTBA-LIPI Yogyakarta from Indonesian traditional fermented foods are *tempe* and *gathot*. The aims of this study are evaluation characteristics probiotic candidate of phytase-producing yeast isolates include antimicrobial activity against pathogenic digestive tract of poultry, resistance to antibiotics Penicillin, Streptomycin, and Erythromycin, and understand the viability of phytase-producing yeast to acidic conditions (pH 2 and pH 3), gastric acid (pepsin), and bile salts in the digestive tract. This study used experimental method, by completely randomized factorial design on every experiment. The result of this study analized by *analysis of variance* (ANOVA) with the level of error 5%.

The results of this study are both yeast isolates TKd3 and GF1 potential to antimicrobial activity against pathogenic bacteria and resistant to the antibiotics Streptomycin, Penicillin, and Erythromycin. The viability of yeast phytase TKd3 and GF1 isolates show the highest percentage viability in gastric acid condition, and the lowest percentage on bile salts condition. The highest viability was obtained in GF1 yeast isolates with a percentage of 218,58% for 60 minutes of gastric acid exposure, while the lowest viability was obtained in yeast isolates TKd3 at 180 minutes exposure to bile salts with a percentage of 5,78%. Both yeast isolates TKd3 and GF1 cannot be used as probiotic candidates in poultry.

Keyword: *Phytase, Yeast, Probiotic.*