

Kloning dan Ekspresi Gen Envelope 1 (E1) Virus Chikungunya Isolat Jambi pada *Saccharomyces cerevisiae* INVSc1 = Cloning and Expression of Gene Envelope 1 (E1) Virus Chikunguya Jambi Isolate In *Saccharomyces cerevisiae*

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Deskripsi Lengkap: <https://lib.ui.ac.id/detail?id=20513272&lokasi=lokal>

Abstrak

Gejala infeksi virus chikungunya dapat menjadi hambatan sosioekonomi sehingga diperlukan deteksi dini infeksi tersebut. Badan Pengkajian dan Penerapan Teknologi (BPPT) memulai pengembangan kit diagnostik infeksi virus chikungunya berbasis imunologi menggunakan Rapid Diagnostic Test dari antibodi monoklonal envelope 1 (E1). Penelitian kloning dan ekspresi gen E1 virus chikungunya dari isolat Jambi bertujuan untuk memperoleh plasmid rekombinan pYES2-E1 dan protein rekombinan E1 dari host *Saccharomyces cerevisiae* INVSc1. Teknik yang digunakan yaitu kloning DNA plasmid pembawa gen E1 yang akan ditransformasikan ke *Escherichia coli* dan *S. cerevisiae*. Analisis hasil ekspresi protein E1 rekombinan menggunakan teknik western blot. Hasil dari penelitian ini menunjukkan plasmid rekombinan pYES2-E1 diperoleh menggunakan verifikasi teknik PCR dan double digestion. Hasil ekspresi protein rekombinan E1 pada *S. cerevisiae* INVSc1 menunjukkan terdapat band yang berukuran 34—43 kDa menggunakan teknik western blot. Protein E1 rekombinan yang berhasil terekspresi pada *S. cerevisiae* diperlukan validasi menggunakan antibodi monoklonal E1. Hasil isolasi plasmid pYES2-E1 dilanjutkan dengan verifikasi sekuensing DNA.

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Symptoms of chikungunya virus infection can be a socioeconomic challenges, so early detection of the infection is needed. The Agency for the Assessment and Application of Technology (BPPT) began the development of an immunology-based chikungunya virus infection diagnostic kit using the Rapid Diagnostic Test from monoclonal envelope 1 (E1) antibodies. Research on cloning and expression of the chikungunya virus E1 gene from the Jambi isolate aimed to obtain recombinant pYES2-E1 plasmids and E1 recombinant proteins from the host *Saccharomyces cerevisiae* INVSc1. The technique used is to clone plasmid DNA E1 gene carriers which will be transformed into *Escherichia coli* and *S. cerevisiae*. Analysis of recombinant E1 protein expression using the western blot technique. The results of this study indicate that the recombinant pYES2-E1 plasmid was obtained using PCR verification techniques and double digestion. The results of E1 recombinant protein expression in *S. cerevisiae* INVSc1 showed a band of 34—43 kDa using western blotting technique. The recombinant E1 protein in *S. cerevisiae* that was successfully expressed required validation using monoclonal E1 antibodies. The results of the pYES2-E1 plasmid isolation were followed by verification of DNA sequencing.<i/>