

## ABSTRACT

Bacteriophage is a virus that attacks its host bacteria as a target by destroying bacterial cells through the lysis process so that the host bacteria dies. The use of this bacteriophage is often used as a natural alternative method that is environmentally friendly. The purpose of this study was to determine the number of specific lytic phage *Escherichia coli* isolated from the waters of Buah river, Ilir Timur II District, Palembang City. This study used a quantitative descriptive experimental method with parameters, namely isolating *Escherichia coli* bacteria, gram staining, pathogenic testing and isolating specific *Escherichia coli* lytic phages. The samples tested were 9 samples taken from the waters of Sungai Buah, Ilir Timur II District, Palembang City, it was found that six samples that were positive for *Escherichia coli* were St 1-2, St 2-1, St 2-3, St 3-2 and St 3-3 some are pathogenic, including St 1-2, St 2-3 beta-hemolytic; St 1-3, St 2-1 and St 3-3 alpha - hemolytic; and St 3-2 gamma-hemolytic which means they are non-pathogenic. The results of bacteriophage isolation showed that nine phage isolates were obtained with codes including FK 1a, FK 2b, FK 3c, FK 4a, FK 5b, FK 6c, FK 7a, FK 8b, and FK 9c that could lysis *Escherichia coli* cells. This research conclusion that the specific lytic phage of *Escherichia coli* can be used as a natural biocontrol of water pollution.

**Keywords:** Lytic phage, *Escherichia coli*, Buah river.

## ABSTRAK

Bakteriofage merupakan salah satu virus yang menyerang bakteri inangnya sebagai target dengan menghancurkan sel bakteri dengan sempurna melalui proses lisis sehingga bakteri inangnya mati. Penggunaan bakteriofage ini sering digunakan sebagai metode alternatif alami yang bersifat ramah lingkungan. Tujuan penelitian ini untuk mengetahui jumlah fage litik spesifik *Escherichia coli* yang di isolasi dari perairan Sungai Buah Kecamatan Ilir Timur II Kota Palembang. Penelitian ini menggunakan metode eksperimental deskriptif kuantitatif dengan parameter yaitu mengisolasi bakteri *Escherichia coli*, pewarnaan gram, uji patogenitas dan mengisolasi fage litik spesifik *Escherichia coli*. Sampel yang di uji sebanyak 9 sampel diambil dari perairan Sungai Buah Kecamatan Ilir Timur II Kota Palembang, didapatkan bahwa enam sampel yang positif mengandung *Escherichia coli* yaitu St 1-2, St 2-1, St 2-3, St 3-2 dan St 3-3 ada beberapa bersifat patogen antara lain St 1-2, St 2-3 bersifat  $\alpha$ -hemolisis; St 1-3, St 2-1 dan SB 3-3 bersifat  $\beta$ -hemolisis; dan St 3-2 bersifat  $\gamma$ -hemolisis yang berarti bersifat non-patogen. Hasil Isolasi Bakteriofage menunjukkan bahwa didapatkan Sembilan isolat fage dengan kode antara lain FK 1a, FK 2b, FK 3c, FK 4a, FK 5b, FK 6c, FK 7a, FK 8b, dan FK 9c yang dapat melisis sel *Escherichia coli*. Kesimpulan penelitian bahwa fage litik spesifik *Escherichia coli* dapat digunakan sebagai biokontrol alami pencemaran perairan.

**Kata Kunci:** Fage Litik, *Escherichia coli*, Sungai Buah.