

**ABSTRACT****TRANSFER of DNA PLASMID ENCODING ESBL (Extended Spectrum  $\beta$ -lactamase) FROM *Escherichia coli* to *Klebsiella pneumoniae* INTO THROUGH THE TRANSFORMATION AND CONJUGATION**

Extended Spectrum  $\beta$ -lactamase (ESBL) are enzymes produced by bacteria that play an important role in resistance to antibiotics, especially 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> generation cephalosporin antibiotics. The spread of resistance among some bacteria, both in the same species and cross-species have increased. Presumably this increased resistance is caused by horizontal gene transfer through transformation and conjugation. To prove the existence of horizontal gene transfer, in this research, the process of transfer of plasmid DNA from *E. coli* ESBL positive to *K. pneumoniae* ESBL negative. The result is, the transfer of plasmid DNA from *E. coli* ESBL positive to *K. pneumoniae* ESBL negative work done through the mechanism of transformation marked by expressed gene encoding a positive ESBL in *K. pneumoniae* and caused *K. pneumoniae* become resistant. Meanwhile, through the mechanism of conjugation, gene encoding a positive ESBL successfully transferred into *K. pneumoniae* and caused *K. pneumoniae* resistant to cefotaxime and aztreonam, and are sensitive to ceftriaxone and ceftazidime, but resistance to cefotaxime and aztreonam are not classified as ESBL. It is thought to be caused by back mutation in the sequence composition, or changes in the structure of ESBL enzymes.

**Keywords :** ESBL, *E. coli*, *K. Pneumoniae*, horizontal gene transfer, plasmid resistance.