

ABSTRACT

Intimin (encoded with *eae* gene) is the only bacterial adherence factor identified thus far as important for intestinal colonization in *Enterohemorrhagic Escherichia coli* (EHEC) O157. Notwithstanding the above, a significant minority of human STEC isolates, including those from patients with hemorrhagic colitis and hemolytic uremic syndrome, do not contain *eae* gene, indicating that intimin is not essential for human virulence. Therefore the main purpose of this research is to prove that besides intimin, the other adherence factors such as fimbrial protein and lipopolysaccharide (LPS) also play a role in the adherence mechanism of EHEC O157 to enterocyte.

The crude of fimbrial protein and lipopolysaccharide (LPS) of EHEC O157 extraction had been done. It was continued with hemagglutination and adhesion assay. The hemagglutination assay in this research used microtiter method. In the adhesion assay, each crude of fimbrial protein or LPS was mounted at rabbit enterocyte with concentration progressively decline from 1, $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, $\frac{1}{16}$, to 0. From the adhesion assay, it was obtained adhesion index that is the number of coherent bacteria at enterocyte counted until one hundred enterocytes and made its average.

This research shows the hemagglutination reaction in both crude of fimbrial protein and LPS, meaning that in the two surface components of the bacteria contain adhesin. It is suggested that the adhesin in crude of fimbrial protein is mediated by protein 31 kDa and 24 kDa, whereas the adhesin in LPS is mediated by O side chain region. The adhesion assay shows the influence of crude of fimbrial protein concentration to the adhesion index of EHEC O157 at enterocyte supported by regression analysis with F value is 78.852 ($p < 0.05$). Likewise, the adhesion assay shows the influence of LPS concentration to the adhesion index of EHEC O157 at enterocyte with F value is 97.315 ($p < 0.05$). Based on the regression analysis, it seems that LPS concentration little more influence to adhesion index than crude of fimbrial protein concentration.

Keywords : EHEC O157, fimbrial protein, lipopolisakarida, adherence mechanism