

## ABSTRACT

The objective of the study is to investigate whether there are differences of haemagglutination (HA) patterns between diarrhegenic *E. coli* (EPEC and ETEC) and flora normal *E. coli*. HA test is done by slide method with 5 types of species of erythrocytes, i.e : chicken, sheep, guinea pig, human group A, and bovine. HA test is applied with or without D-mannose addition.

The study is observational laboratory, using 2% pepton - 0.5% Na Cl - 2% agar medium. The samples are 29 strain of EPEC, 13 strain of ETEC and 29 strain of flora normal *E. coli*. These samples were got from stock cultures of *E. coli* in Gastroenteritis Laboratory, TDC, UNAIR and Instalasi Mikrobiologi Klinik Rumah Sakit Dr. Soetomo, Surabaya. Strain-strain of EPEC, ETEC and flora normal *E. coli* are identified by serogrouping O.

Analysis of the HA results indicates that there are differences of HA ( $p=0.00000$ ) between EPEC, ETEC and flora normal *E. coli*, using 5 types of species of erythrocytes, generally. There are difference of HA between EPEC, ETEC and flora normal *E. coli* using chicken erythrocytes ( $p=0.00003$ ); using erythrocytes of sheep, guinea pig, human group A ( $p=0.00000$ , respectively); and using bovine erythrocytes ( $p=0.00002$ ). Apparently, that each category of *E. coli* has different HA pattern and species specific.

There are many sets of HA patterns of each category of *E. coli* using 5 types of species of erythrocytes and overlapping of HA patterns between EPEC, ETEC and flora normal *E. coli*. The adhesion characteristics of EPEC, ETEC and flora normal *E. coli* may be too complex to be assessed by simple HA test. The complexity of strain may be influenced by heterogeneity of hemagglutinin or

adhesin of each category of *E. coli*, erythrocytes have more than one type of receptor for that hemagglutinin or adhesin, type of medium for expressing hemagglutinin or adhesin, any subcultures, and any blood groups of each erythrocytes species or moreover there are complex heterogeneity of antigens between individu of each erythrocytes species. It is becoming increasingly evident that the samples designation of hemagglutinin or adhesin in the basis HA reaction is inadequate. HA alone is not a suitable method for demonstration of hemagglutinin or adhesin of each of category of *E. coli*.

Nevertheless, MRHA (Mannose-Resistant Haemagglutination) system typing of pathogenic *E. coli* is useful for preliminary screening because each category of *E. coli* has special range of cells where it adheres. The usage of many species of erythrocytes makes one can detect different hemagglutinin or adhesin possibly.

The conclusion is generally, there are differences of HA patterns between diarrhegenic *E. coli* (EPEC and ETEC) and flora normal *E. coli*.