

# Cluster Analysis of Minimal Inhibitory Concentrations (MICs) in *Shigella flexneri* Isolates

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## Abstract

A total of 36 clinical *Shigella flexneri* isolates were collected in a teaching hospital in southern Taiwan from 1982 to 1987. The minimal inhibitory concentrations (MICs) of these isolates were analyzed and then the results were translated to binary codes. Subsequently, the binary codes were subjected to Nei's similarity method and then their similarity coefficients were subjected to UPGMA cluster analysis system to construct a MIC related dendrogram. According to the dendrogram, the isolates can be divided into 4 clusters and the drug resistance pattern of each cluster is described as follows. Cluster A contained 4 isolates whose drug resistance pattern was S<sup>r</sup> or Te<sup>r</sup>; cluster B contained 4 isolates whose drug resistance pattern was Amp<sup>r</sup>C<sup>r</sup>Na<sup>r</sup>Pr<sup>r</sup>S<sup>r</sup>S<sup>t</sup>Te<sup>r</sup>; cluster C contained 24 isolates whose drug resistance pattern was Amp<sup>r</sup>C<sup>r</sup>S<sup>r</sup>Te<sup>r</sup> or Amp<sup>r</sup>C<sup>r</sup>Pr<sup>r</sup>S<sup>r</sup>Te<sup>r</sup>; cluster D contained 4 isolates whose drug resistance pattern was C<sup>r</sup>S<sup>r</sup>Te<sup>r</sup>. Except for cluster A, the other 32 isolates showed multiple drug resistance. Taking MIC analysis and drug resistance pattern analysis together, we conclude that these two systems can be cooperatively used in cluster analysis of antibiotic susceptibility in *S. flexneri* clinical isolates.

**Key words:** shigella, antibiotic susceptibility, minimal inhibitory concentration