

Sodium benzoate is associated with salmonella typhi resistant to chloramphenicol / Jonny K Fajar, Retno A Puspitasari, Ariani R Dewi, Arif Yahya, Jay R Anand⁵

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Abstrak

Objective: There are many factors that govern growth and resistant of Salmonella typhi. A study had reported that the use of sodium benzoate caused antibiotic resistant. However, no study has directly evaluated the effect of sodium benzoate exposure on S. typhi sensitivity to chloramphenicol. The aim of this study was to evaluate the resistance or sensitivity of S. typhi to chloramphenicol after sodium benzoate exposure. **Methods:** The study was conducted in seven groups: three treatment groups (sodium benzoate insensitive S. typhi+8 μ g/mL, 16 μ g/mL, and 32 μ g/mL of chloramphenicol), three positive control groups (sodium benzoate sensitive S. typhi+8 μ g/mL, 16 μ g/mL, and 32 μ g/mL of chloramphenicol), and one negative control groups (sodium benzoate sensitive S. typhi+0 μ g/mL of chloramphenicol). The effect of sodium benzoate exposure to S. typhi sensitivity to chloramphenicol was measured after 24 hours. Spearman test was used to analyzed this association. **Results:** In this study, we found that the average S. typhi growth in the treatment groups (A, B, C) was 445 CFU/mL, 385 CFU/mL, and 171 CFU/mL, respectively. While in the positive control group (D, E, F) was not obtained any S. typhi growth. Average S. typhi growth in the negative control group was 430 CFU/mL. We found that sodium benzoate exposure inhibited S. typhi growth and affected S. typhi sensitivity to chloramphenicol ($p < 0.05$). In addition, we found that 32 μ g/mL chloramphenicol had the highest mean difference value, so this showed that the dose 32 μ g/mL of chloramphenicol had the best effectiveness of various treatment groups ($p < 0.05$). **Conclusions:** Sodium benzoate exposure can inhibit S. typhi growth and cause S. typhi resistant to chloramphenicol.