SYSTEMIC AND PREDICTIVE TRENDS OF MULTIDRUG RESISTANT SALMONELLA TYPHI ISOLATED FROM WASTEWATER IN SUDAN

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Background: Enteric fever has persistence of great impact in public health, it caused by *Salmonella enterica* that seldom detected in wastewaters of stabilization stations due to treatment processes

Objective: The aim of this study is to evaluate the recent state of antibiotics susceptibility of *Salmonella* Typhi with special concern to multidrug resistance strains and predict the emergence of new resistant patterns

Methods: *Salmonella* Typhi were isolated and identified according to WHO and ISO guidelines, the bacterial antibiotic susceptibilities were tested using the CLSI recommendations. The predictions of resistance emergence were done using logistic regression, forecasting linear equations and stochastic model.

Results: A total of 128 antibiotics resistant *Salmonella* Typhi strain were recovered from wastewater, they resisted antibiotics except ciprofloxacin. Current patterns of ciprofloxacin breakpoints interpretations were in susceptible ranges by disc diffusion (S≥20 mm), minimum inhibitory concentration was recorded as (I=16 μg/ml) and minimum bactericidal concentration= (R≥32 μg/ml). The probability of an isolate to develop resistance was plotted for MBCs the rate of resistance. The predictive patterns of resistance were spontaneously solved using exponential trend ($y=ne$) for each isolate at 16 μg/ml and 32 μg/ml of ciprofloxacin in certain period and the high values of coefficient $R^2>0.5$ indicate the rates of bacteria resistance incidence.

Conclusions: The current patterns of S. Typhi confirmed the increasing probability of emerging multidrug resistance according to frequent consuming, drug policy and bacterium genetic mutations.

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