

**DECLARATION**

**DETERMINATION OF THE MOST EFFECTIVE  
CHEMICAL DISINFECTANT FOR  
*Salmonella gallinarum*, IN POULTRY INDUSTRY**

A dissertation submitted to the  
Faculty of Animal Science and Export Agriculture  
Uva Wellassa University  
in partial fulfillment of the requirement of  
the degree of  
Bachelor of Animal Science

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**2012**

## ABSTRACT

The study was conducted to evaluate highest effective chemical disinfectant against *Salmonella gallinarum*, which responsible for Fowl Typhoid, an acute intestinal disease of young chickens and turkeys. In addition, the study aimed to determine best concentration-contact time for best disinfectant. Tested disinfectants are practically using chemicals, in the poultry industry Sri Lanka and represent five chemical groups.

Chemical groups were quaternary ammonium compounds, aldehydes, oxidizing agents, chlorine releasing compounds and iodine compounds. Selected two highly effective disinfectants (80% Quaternary Ammonium compound and Quaternary Ammoniums 12.5% + Gluteraldehyde 6.25% compound) were subjected to further studies on three different concentrations. 0.002 v/v, 0.001 v/v and 0.0005 v/v were the assessed concentrations for 80% Quaternary Ammonium compound and 0.01 v/v, 0.005 v/v and 0.0025 v/v were the examined concentrations for Quaternary Ammoniums 12.5% + Gluteraldehyde 6.25% compound. Each different concentration was tested for selected 3 different contact times (2, 10 and 18 minutes), under laboratory conditions.

Results of the study revealed that, there is a significant interaction among remaining bacterial count, concentration of the disinfectants and contact time. As the most effective combination, 0.01 v/v concentration of Quaternary Ammoniums 12.5% + Gluteraldehyde 6.25% compound was highly effective to completely eliminate *Salmonella gallinarum*, at 2minutes of contact time. In addition to that most effective concentration-contact time combination, economically beneficial combinations were reported.

Depending on the results, available disinfectants can use effectively in Fowl Typoid outbreaks, in disease control programs, and to maintain hygiene of needed poultry units.

Key Words: *Salmonella gallinarum*, disinfectants, concentration, contact time