

Biological Test for Triazine Efficacy Eradication of Pathogenic Bacteria, Ranyah, KSA

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Abstract

The objectives were to use triazine chemico-pharmaco complexes to test their efficacy eradication of pathogenic bacteria were *Staphylococcus aureus* (*Staph. aureus*) and *Escherichia coli* (*E. coli*). Average eradication of *Staph. aureus* was obvious in samples 4 and 5, followed by 2 and then 1 and 3. The ratio were duple from the preceding one. While for *E. coli* included the fifth sample, then fourth, then first, second and third. It was quick, but not duplication, to reach complete eradication. Average turbidity degree of *Staph. aureus* presented in the fourth and fifth samples at 10 hr, then the second sample at 12 hr and the rest at 14 hr. From the average turbidity degree, it turned out that the turbidity gradually disappeared and moved from one degree to another after two hours, while at 12 hr and 14 hr it was in the same class and reached the absence of turbidity degree at 14 hr. So long, for *E. coli* was disappeared in the fifth sample at 10 hr, followed by the fourth sample at 12 hr and the rest at 4 hr. From the average turbidity degree, it was gradually disappeared. The present study concluded that from test results showed newly prepared of triazine chemico-pharmaco complexes displayed a good antibacterial activity by efficacy eradication of pathogenic bacteria. While also showed triazine chemico-pharmaco complexes may be a talented pattern for antibacterial activities. This research also recommended triazine chemico-pharmaco complexes may use as substitution of antibiotics against antibiotic resistant pathogenic bacteria.

Keywords: triazine chemico-pharmaco complexes, pathogenic bacteria, staph. aureus, e. coli, eradication, turbidity degree

Introduction

The chemico-pharmaco complexes had industrial a reliable in medical enquiry [1]. Triazine had considered as a safe in numerous antibacterial, secure site and were rising in nature [2]. Its complexes were significant as antibacterial as in pharmacological. They were present in produces, was thrilling had inspirational organic possessions [3]. They current in usual bases had antibacterial possessions and rising care of antibacterial for pathogenic bacteria [4]. They had seemed increasing of antibacterial fight bacteria; so they replaced as substructures [5]. They had significant part in therapeutic interaction due to organic actions as antibacterial. They combined heterocyclic complexes produced and partitioned for antibacterial action. As well in contradiction of Gram-positive and negative bacteria. They had presented astonishing *in-vitro* antibacterial in contradiction of *Staph. aureus* and *E. coli* as main pathogenic and diseases causing bacteria [1]. They reserved the strength against as antibacterial, so for *Staph. aureus* by observed activity decrease and decline the reset bacteria [6-7].

The objectives of this cooperative research paper were to use five triazine chemico-pharmaco complexes of the abovementioned synthetic chemical, that were to test their efficacy eradication of pathogenic bacteria (*Staph. aureus* and *E. coli*). It was by ability to exterminate two types of main

pathogenic diseases causing bacteria. As well, it may helped to use as a chemo-pharmaceutical substance to eradicate pathogenic bacteria and as alternatives to antibiotics.

Methodology

- **Preparation of chemical samples:** Five samples of triazine chemico-pharmaco complexes under test had collected from "Medical Sciences Dept." with full chemical characteristics [8].
- **Preparation of pathogenic bacteria:** Two classified pathogenic bacterial samples under test (*Staph. aureus* and *E. coli*) had collected from "Analysis Center". The samples had cultured on "Molar Hinton Agar", and then had transferred a measured quantity to sterile tubes with a fixed amount of the triazine chemico-pharmaco complexes. The tubes had kept in the incubator for 14 hours at 37°C with taking samples every two hr for cultivation and monitoring eradication percentage, then recording means. The turbidity had measured in the tubes every two hours by "McFarland Standards" and recording means [9].
- **Data analysis:** The results averages had collected and had use "Simple Excel Program" to create tables and graphs maintaining the results [10].

Results and discussion

*No	Eradication %						
	2 *hr	4hr	6hr	8hr	10hr	12hr	14hr
No 1	10%	20%	30%	50%	70%	90%	100%
No 2	15%	30%	50%	70%	85%	100%	100%
No 3	10%	15%	30%	50%	65%	90%	100%
No 4	25%	55%	70%	80%	100%	100%	100%
No 5	25%	50%	60%	80%	100%	100%	100%
Mean	17%	34%	48%	66%	84%	96%	100%

***Staph. aureus: Staphylococcus aureus, *No: Number, *hr: Hour**

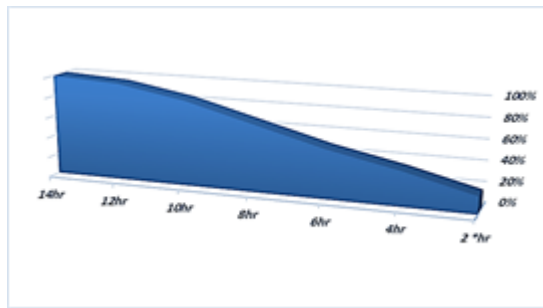
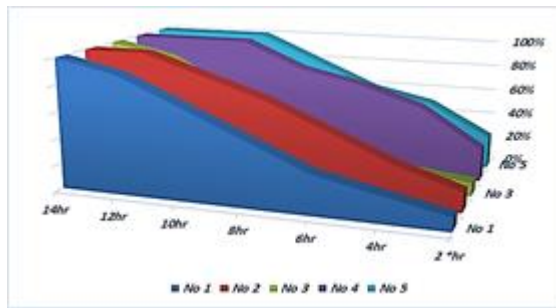


Table 1 and Graph (1 and 2). Average eradication percentages of *Staph. aureus after remain with complexes

Table 1 and graph (1 and 2) presented average eradication percentages of *Staph. aureus* after remain with triazine chemico-pharmaco complexes, the eradication process was evident in samples 4 and 5, followed by sample 2 and then samples 1 and 3. The complete eradication of bacteria was after ten hr for the fourth and fifth samples, it did after 12 hr for the second sample only, and it completed after 14 hours for samples 1 and 3. From the mean, it found that the eradication ratio were doubles from the previous one, which indicated the speed of extermination of the tested

triazine chemico-pharmaco complexes material for bacteria in double proportions. The result showed the extent of the effect of the triazine chemico-pharmaco complexes on bacteria. It was able to destroy it within a period of ten hr from the tested samples [1-7]. As well, this appeared an efficacy eradication of pathogenic bacteria, so this indicated its ability to eliminate disease-causing bacteria. Therefore, this may be an alternative to antibiotics to eliminate antibiotic resistant bacteria [1-7].

*No	Eradication %						
	2*hr	4hr	6hr	8hr	10hr	12hr	14hr
No 1	10%	15%	25%	40%	60%	80%	100%
No 2	5%	20%	40%	55%	75%	90%	100%
No 3	15%	30%	45%	60%	75%	90%	100%
No 4	20%	40%	60%	80%	90%	100%	100%
No 5	20%	45%	65%	80%	100%	100%	100%
Mean	14%	30%	47%	63%	80%	92%	100%

***E. coli: Escherichia coli, *No: Number, *hr: Hour**

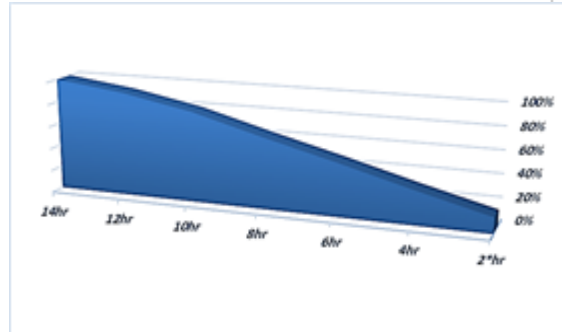
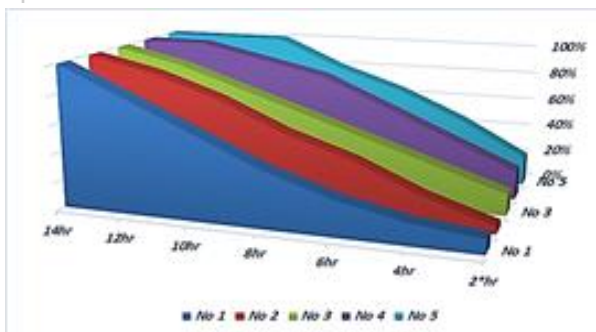


Table 2 and Graph (3 and 4). Average eradication percentages of *E. coli after remain with complexes

Table 2 and graph (3 and 4) presented average eradication percentages of *E. coli* after remain with triazine chemico-pharmaco complexes, the eradication process included the fifth sample, then only the fourth in speed, then the first, second and third sample. The fifth sample was the fastest, as it completed at 10 hr, the fourth sample took place at 12 hr, and the rest were at 14 hr. From the mean, it found that the rates of eradication

were quick, but not multiplying, to reach complete eradication [1-7]. Through the test, it found that the tested triazine chemico-pharmaco complexes had the ability to eradicate bacteria that causes diseases or food poisoning and may use for preserving food, so longer this could use an alternative to antibiotics. The test results proved their ability to appear an efficacy eradication of pathogenic bacteria [1-7].

*No	Turbidity Degree						
	2*hr	4hr	6hr	8hr	10hr	12hr	14hr
No 1	4	4	3	2	1	1	0
No 2	4	3	2	1	1	0	0
No 3	4	4	3	2	2	1	0
No 4	4	2	1	1	0	0	0
No 5	4	2	2	1	0	0	0
Mean	4	3	2.2	1.4	0.8	0.4	0

*Staph. Aureus: Staphylococcus aureus, *No: Key Number, *hr: Hour

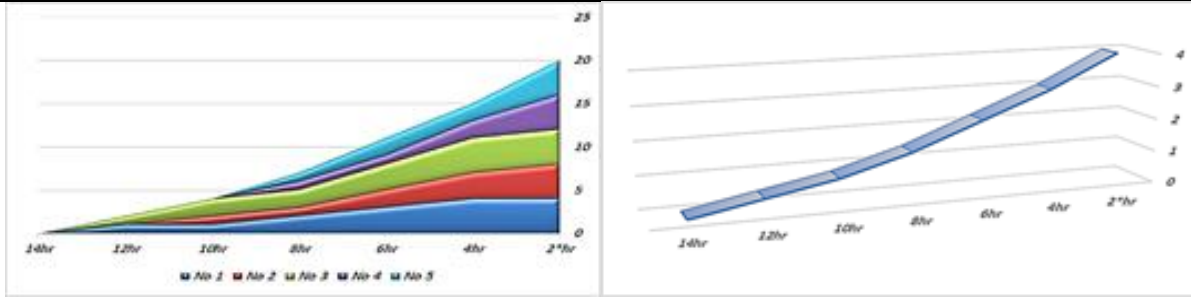


Table 3 and Graph (5 and 6). Average turbidity degree of *Staph. aureus after remain with complexes.

Table 3 and graph (5 and 6) presented average turbidity degree of *Staph. aureus* after remain with triazine chemico-pharmaco complexes, measuring the average turbidity degree indicated the presence of live bacteria cells in the solution. It showed through measurement that the fastest in the disappearance of turbidity, which was evidence of the death and decomposition of cells in the fourth and fifth samples at 10 hr, then the second sample at 12 hr and the rest at 14 hr. From the average turbidity degree, it turned out that the turbidity gradually disappeared and moved

from one degree to another after two hours, while at 12 hr and 14 hr it was in the same class and reached the absence of turbidity degree at 14 hr [1-7]. The disappearance of turbidity degree was the largest evidence of bacterial cell death and decomposition, which proved that the triazine chemico-pharmaco complexes carried out cell death and decomposition, and this proved their role in antibacterial, so they could use as an alternative to antibiotics [1-7].

*No	Turbidity Degree						
	2*hr	4hr	6hr	8hr	10hr	12hr	14hr
No 1	4	4	4	3	2	1	0
No 2	4	4	3	2	1	0	0
No 3	4	3	3	2	1	0	0
No 4	4	3	2	1	0	0	0
No 5	4	3	2	1	0	0	0
Mean	4	3.4	2.8	1.8	0.8	0.2	0

*E. coli: Escherichia coli, *No: Number, *hr: Hour

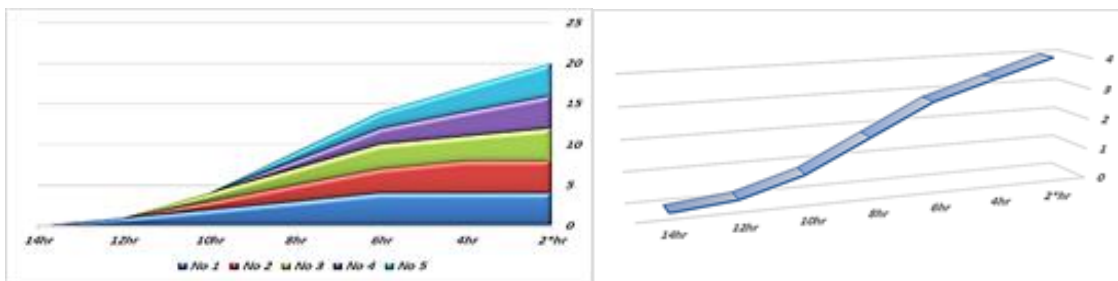


Table 4 and Graph (7 and 8). Average turbidity degree of *E. coli after remain with complexes

Table 4 and graph (7 and 8) presented average turbidity degree of *E. coli* after remain with triazine chemico-pharmaco complexes, turbidity degree of bacterial cells disappeared in the fifth sample at 10 hr, followed by the fourth sample at 12 hr and the rest were at 4 hr. From the average turbidity degree, it was gradually disappeared [1-7]. From the results, the ability of the triazine chemico-pharmaco complexes to eliminate bacteria confirmed. It can prove that they had antibacterial properties, as well as an efficacy eradication of pathogenic bacteria [1-7].

Conclusions

The present study showed that newly prepared of triazine chemico-pharmaco complexes showed good antibacterial activity by efficacy eradication of pathogenic bacteria. While also showed triazine chemico-pharmaco complexes may be a talented pattern for antibacterial activities.

Recommendation

Triazine chemico-pharmaco complexes may use as substitution of antibiotics against antibiotic resistant bacteria.

Acknowledgment

Many thank sent to "Medical Sciences Dept." and "Analysis Center" for sending triazine chemico-pharmaco complexes and pathogenic bacteria (*Staph. aureus* and *E. coli*) to conduct an antibacterial experiment.

Future works

It is hope to conduct experimentally antibacterial effects of triazine chemico-pharmaco complexes as chemical or pharmacological derivatives.

Fundus

It was from authors.

Conflict of interest

It had declared no conflict of interest.

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