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Effect of *Lawsonia and Thuja* Extract on Hemolysin from *Staphylococcus aurous* which Isolate from Tonsillitis

[1]Mohammed abdul aziz ismail [2] Farkad Hawas Musa, Abdullah .H.Alkhater [3]

[1]Department of biology, college of Education for pure sciences University of Anbar, Iraq
E-mail: midadalanbar@yahoo.com
[2]Department of biology, college of Education for pure sciences University of Anbar, Iraq, E-mail: Sea_rose10@yahoo.com
[3]Al Maarif University College, Department of Medical Laboratory Techniques, Anbar-Iraq

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ABSTRACT

This study included that of some plant extracts on the effectiveness of the hemolysin enzyme from Staphylococcus aureus. This enzyme is considered to be a strong virulence factor that this bacterium possesses as it works on the analysis of red blood cells. Therefore, it has been researched on the use of some plant extracts that work to inhibit efficacy. ***Lawsonia*** and **Thuja** extracts, and a number of concentrations of 20,40,80% were attended. The effect of these extracts on the inhibition of the effectiveness of this enzyme was studied. The study demonstrated that all concentrations had an effect on inhibiting the activity of the enzyme, but the ideal focus for inhibition of efficacy was 80%, after which the effect of Other concentrations are 40 and 20%, respectively.

Keywords: *Lawsonia* and Thuja extracts, hemolysin activity.

Correspondence:
Mohammed Abdul Aziz Ismail
Department of Biology, College of Education for Pure Sciences, University of Anbar, Iraq
E-mail: midadalanbar@yahoo.com

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INTRODUCTION

Lawsonia is A tree of the yearly or perennial henna family that lasts about three years and may extend to ten, evergreen, branching abundant, up to three meters in length, henna plant perennial shrub and has red roots and leg many branches and branches sideways and are green and turn brown at maturity.[1,2,3] The leaves of henna are simple, oval-shaped leather with a length of 3–4 cm wide or opposite ovens.[4,5,6] They are contrasted with a light red or yellowish-white color. The small white flowers have a strong and distinctive aromatic smell. [7,8,9] Lawsonia inermis resulted in a 65% discount of mycelial growth followed by Pithecolobium dulce. Partial purification of antifungal compounds was once carried out the use of a series of solvents one by one. Among the solvents, Acetone extract of L. inermis. Exhibited the highest antifungal activity in opposition to many fungi like Alternaria solani, Drechslera halides, D. graminea, Fusarium solani, and Curvularia lunata when examined under poisoned food technique.[10,11,12]

MATERIAL AND METHODS

Collection of clinical specimen

Collection of 80 pathological samples included samples of urinary tract infections and swabs from people suffering from otitis media and tonsillitis and smears from burn hallways.

Isolation and identification of bacteria

The bacteria were diagnosed using the selection media of the bacteria and biochemical tests were used for diagnosis.

Extraction of plant

Take 10 g of dry vegetable powder and put in a 250 ml glass beaker, then add 2% of acetic acid to it. The extraction process was carried out using a reflective condenser using a water bath at a temperature of 50 hours for 10 hours, then filtered using filter paper and the filter added an equal amount of N propanol. And a sufficient amount of sodium chloride for the purpose of achieving the saturation status.[13]

Hemolysin production

Serial dilutions of the bacterial suspension in 1 ml of sodium phosphate buffer. Then add 80 µl of 5% RBC and incubated at 37°C for 3 h. Then the results read as following .[14]

$$Enzyme\ activity\ (U/ml)(\text{titer}) = \frac{1}{\text{Higher dilution giving complete hemolysis}}$$

RESULT

Table 1: The percentages of *Staphylococcus aureus* bacteria isolated from different sources

Source	Total count	Percentage %
Urine	10	12.5
Otitis media	5	6.25
Tonsils	40	50
Burns	25	31.25

Table 1 shows the percentages of staph bacteria isolated from different sources where the number of isolates from urinary tract infections was 10 samples with a 12.5% isolation, the samples isolated from middle ear infections reached 5 samples with an isolation rate of 6.25%, while the isolated samples from tonsillitis infections 40 samples With a isolation rate of 50%, while the samples isolated from burns were 25 samples with an isolation rate of 31.25%, whereas samples isolated from the tonsils infections gave the highest isolation rate.

Table 2: Hemolysin activity (U/ml) of *Staphylococcus aureus* which treated by *Lawsonia* extract

Con.	Hemolysin activity U/ml				
	F1	F2	F3	F4	F5
20 % of *Lawsonia* extract	44	40	43	42	43
40 % of *Lawsonia* extract	33	34	35	35	33
80 % of *Lawsonia* extract	20	24	26	26	24
Control	66	67	68	67	66

Table 2 shows the effect of the *Lawsonia* extract on the activity of the hemolysin enzyme produced from the staph. bacteria. The study showed that there were significant differences for the effect of *Lawsonia* extract on the effectiveness of the enzyme hemolysin produced from the bacteria where the focus gave 80% more effect of the *Lawsonia* extract on the effectiveness of the enzyme as shown In the table, then the effect of the second concentration comes 40% and 20%, as the study showed that there are no significant differences for plant concentrations with each other

Table 3: ANOVA Hemolysin activity (U/ml) of *Staphylococcus aureus* which treated by *Lawsonia* extract

ANOVA

activity of hemolysin U/ml

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5350.000	3	1783.333	1229.885	.000
Within Groups	23.200	16	1.450		
Total	5373.200	19			

Table 4: Hemolysin activity (U/ml) of *Staphylococcus aureus* which treated by Thuja extract

Con.	Hemolysin activity U/ml				
	F1	F2	F3	F4	F5
20 % of Thuja extract	33	32	33	31	30
40 % of Thuja extract	23	25	24	20	22
80 % of Thuja extract	11	13	16	13	12
Control	55	54	55	56	54

Table (4) shows the effect of the Thuja extract on the activity of the hemolysin enzyme produced from the staph. bacteria. The study showed that there were significant differences for the effect of Thuja extract on the effectiveness of the enzyme hemolysin produced from the bacteria where the focus gave 80% more effect of the Thuja extract on the effectiveness of the enzyme as shown In the table, then the effect of the second concentration comes 40% and 20%, as the study showed that there are no significant differences for plant concentrations with each other.

Table 5: ANOVA Hemolysin activity (U/ml) of *Staphylococcus aureus* which treated by *Thuja* extract

ANOVA

activity of hemolysin U/ml

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5017.800	3	1672.600	1115.067	.000
Within Groups	24.000	16	1.500		
Total	5041.800	19			

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