

## EFFECT OF AQUEOUS LEAVE EXTRACT OF LAW SONIA INERMIS(HANNA) ON SOME PATHOGENIC BACTERIA AND FUNGI

Alaa Fahim

Qadisya university/College of science  
Unite of environment

Hyphaa Aabas.

Qadisya university/College of science  
Unite of environment

Taif Modhaheer Muslem

Qadisya university/College of science  
Unite of environment

### Abstract :-

The present study was undertaken to leaves extract of Law Sonia nermis against clinical isolates of Staphylococcus aureus, Streptococci, E.coli , Candida albicans , Pseudomonas aeruginosa and the fungi Aspergillus niger and Penicillium sp.

The aqueous leaves extract of Law Sonia nermis(1000mg/ml) showed high inhibitory effect on Staph. aureus while the low effect on Pseudomonas aeruginosa . The aqueous leaves extract showed inhibitory effect on Aspergillus niger and Penicillium sp.

The minimal inhibitory concentration were (100-750 mg/ml) the activity of aqueous leaves extract was associated with increasing.

### Introduction:-

Law Sonia nermis(Lythraceae) is small shrub cultivated in many tropical countries and warm temperate reign as we dye plant and has been used for colouring palms of hands, soles of feed an finger nails and also for personal adornment(BHuvanes wairi etal,2002). Hanna plant constituent are made up man nite , tannic acid ,mucilage and the gallic acid ,but the main bioactive constituent is 2-hydroxynaphthoquinone (hawsone)which responsible for the dying properties o the plant (singht singh,2001).

Powder leaves of this plant in the form of the past are used as cosmetic and as remedy in skin diseases and used as external application in head ache and rubbed over the soles of feet in burning feet (Dahanukar et al, 2000). Decoction of the leaves is used as gargle in sore throat and against boils, burns, bruises and skin inflammation (Chopra, 1958). Leaves of *Lawsonia inermis* also useful to down the severity of many medical problems like dysentery, diseases of the spleen, lumbago, bronchitis and syphilitic eye infection (Warrier et al, 1995).

Some of the rural people use henna leaves in a lower concentration for body pain, skin infection to reduce the lesion after bee sting, allergy infection inflammation since the antimicrobial substance in *Lawsonia inermis* is highly soluble in water, partially soluble in 70% ethyl alcohol and heat stable (Malekadeh, 1968). Thus based on these observations, this study was undertaken to determine antimicrobial activity of aqueous leaves extract of *Lawsonia inermis* against some pathogenic bacteria and fungi using plate and tube techniques.

## MATERIAL AND METHOD:-

### Plant extraction :-

The plant collected locally and after the species identification was done ,leaves were allowed to dry in open air in the shade area for few weeks air dried leaves were powdered technically and then (1gm )of powdered leaves mixed with 100ml water . The mixture mixed by magnetic stirrer for (24hours)at room temperature and heated for (4hours)at (60-70c° ) with stirring . The mixture was put in centrifuge (5000rpm or ground )for (3)minute, then concentrated by rotary evaporator. The residue represented the crude that is to make different concentration (50,100,250,500,750,1000Mg/ml ) (Saimary,1999).

### Micro organism:-

Clinical isolates of Staph.aureus , Streptococci, E.coli, Ps. aeruginosa, yeast Candida albicans and fungi Aspergillus niger, Penicillium spp. Were supplied by the Microbiology Department in Teaching Diwania Hospital.

The method of (Muhammad and Muhammad ,2005) was used to study anti fungi activity .The method of ( Baron and fingold ,1990) was used to determine the MIC.

### Result and Discussion:-

Anti bacteria activity is recorded when the zone of inhabitation is greater than (6mm)(Malekzade), the result showed that for staph.aureus,antibacterial activity was reported in all concentration. For streptococci and the yeast candida albicans there was no activity at lowest concentration but as the concentration increased the anti bacterial activity was E.coli, Ps. aeruginosa . For E.coli and Ps. aeruginosa only mild anti bacterial activity was at highest concentration the result was supported by (Muhammad and Muhammad,2005) .

For fungi A.niger,Penicillium sp ,there was a slight inhabitation in growth, still as the concentration increased , inhabitation was accomplished for the first (2-3) days and was complete inhabitation for Penicillium sp at the concentration (1000 mg/ml). The minimal inhabitation concentrations rang between (100to 750 Mg/ml) .Aqueous leaves rxtact was effective in its least concentration (100Mg/ml) on Staph. aureus while the highest concentration (750Mgml) was for Ps.aeruginosa .

The present study showed that the aqueous leaves extract of Law sonia inermis have anti bacteria`and anti fungal activity , the fact that the aqueous leaves extract of Law sonia inermis produced inhabitation zone against gram positive bacteria such as Staph. aureus, Streptococci ,the yeast candida albicans and the fungi Aspergillus.niger ,Penicillium sp . , which have been implicated in the pathology of skin, indicate the person of antimicrobial activity which confirm its use as anti-infectio agent .

From investigation carried out it shows that low concentration of aqueous leave extract would inhibit the effect of these organism . this gives credence to its

aqueous pharmacological use as a remedy for these skin infections in which these organisms are implicated (Ali et al, 2000).

#### REFERENCES:-

- AL-Saimary .I.E.1993.A study of antibacterial activity of extract of Mythus commis L.(myrtaceae).
- AL- Saimary .I.E.1999. A study of antibacterial activity of extract of Aqueous extract OA/Allim Sativam L(Liliaceae).Eatern Mediterranean health Tournal Vol,No.4:803-810.
- Ali,B.K.; Tanira,M.O.and Bashir ,A.K.(2000):Anti in flammatory Antipyretic analgesic effect of Linermis linn in rats Desert and Marine Environmental Research Center ,UAE University , AlAin .
- Baron ,E.J.and fine gold ,S.M. (1990).Baily and Scott.diagnos (8<sup>th</sup>) C.V.Mosby.U.S.A.
- Bhuvane swari.S.and Kuruvilia.(2002):Inhibitory concentration of sonia inermis dry powder for urinary pathogens , Indian pharmacology ;Vol .34,p260-263.
- Chopea's indigenous drugs of India,2nded .Calcutta :U.N.Dhur and sons PVT.LTd; 19958,p.42.
- Dahankkar ,S.A.;Kulkarni R.A.;Rege ,N.N .(2000):pharmacology of Medicinal plants and natural products.Indian J.pharmacol.Vol .32:p8-118.
- Malek Zadeh,F.(1968):Antimicrobail activity of Law sonia inermis L .Applied Microbiology .Apr,p.663-664.
- Muhammed ,H.S.and Muhammed,S(2005):The use of Law sonia Inermis linn.(henna)in the management of burn wound Infection s,African.Journal of Biotech.,Vol.4pp.934-937 .
- Singh,A .and Sigh ,D.K.(2001) : Molluscidal activity of Law sonia Inermis and its binaey and tertiary combinations with other plant Terived mollusciides ,Indian .J.Exp Boil .vol.3d (3) :p263-268.
- Warriar, P.K.;Nambiar ,V.P ,Ramankutty ,C.editors.(1995):Indian Meddicinal plants, vol.3,Chennai: orient Longman pvy.LTd;p.303.

Law  
Journal of

**Table(1) effect of aqueous extract of law Sonia nermis leaves on some pathogenic bacteria ,yeast and fungi with its MICs**

Test isolate	Concentration	Zone of inhibition (mm,diameter)	MIC
<b><u>Candida albicans</u></b>	50	0	100
	100	3	
	250	6	
	500	13	
	750	16	
	1000	21	
	50	0	

<b>Streptococcus</b>	100	0	100
	250	2	
	500	9	
	750	18	
	1000	23	
<b>Staph.aureus</b>	50	0	100
	100	1	
	250	8	
	500	14	
	750	20	
	1000	25	
<b>E.coli</b>	50	0	500
	100	0	
	250	0	
	500	0	
	750	5	
	1000	10	
<b>Ps. aeruginosa</b>	50	0	750
	100	0	
	250	0	
	500	2	
	750	8	
	1000	16	

Table(2) effect of aqueous extract of law Sonia nermis on the fungi

**Aspergillus niger and Penicillium sp .**

Fungi	Concentration	Groth at different days (mm)					
		1	2	3	4	5	6
Control		8.3	29	38	57	81	90
<u>Aspergillus niger</u>	250	8	26	33	54	78	90
	500	3.9	42	30	51	77	90
	750	3	18	23	44	59	74
	1000	0	0	0	5.5	14	20
<u>Penicillium sp</u>	250	6.1	12	2	4	65	77
	500	0	0	5	8	14	17
	750	0	0	0	5	9	15
	1000	0	0	0	0	0	0

## تأثير المستخلص المائي لأوراق الحناء على بعض البكتيريا والفطريات الممرضة

ألاء فاهم عباس

هيفاء عباس

مدرس مساعد

مدرس مساعد

جامعة القادسية /كلية العلوم /وحدة البيئة

جامعة القادسية /كلية العلوم /وحدة البيئة

طيف مظهر

مساعد باحث

جامعة القادسية /كلية العلوم /وحدة البيئة

### الخلاصة :-

أجريت هذه الدراسة لتحديد الفعالية الجرثومية للمستخلص المائي لأوراق الحناء *Law soniai nermis* ضد بعض العزلات الجرثومية الممرضة من مكورات عنقودية ذهبية *Staphylococcus aureus* و المكورات المسبحية *Streptococci* والزانفة الزنجارية *Pseudomonas aeruginosa* والاشريشا القولونية *E.coli* والخميرة *Candida albicans* والفطر *Aspergillus niger* و *Penicillium sp.* . أوضح المستخلص المائي للأوراق تركيز 1000 مايكروغرام /مل تثبيط عال لبكتيريا *Staph. aureus* وأقل تثبيط ظهر لبكتيريا *Pseudomonas aeruginosa* كما أظهر المستخلص المائي تثبيط ضد الفطر *Aspergillus niger* والفطر *Penicillium sp* تراوحت حدود التراكيز المثبطة الدنيا MIC بين 100-750 مايكروغرام /مل أظهرت النتائج أن فعالية المستخلص المائي لأوراق الحناء تزداد بزيادة التركيز.