

## **Study the anti-Bacterial &Fungal activity of Junchus Arabica on Some Pathogenic isolates *Invitro***

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### **Abstract :**

To demonstrate and investigate *in vitro* the activity of antibacterial and fungal of fao junchus Arabica fresh and dry seeds obtained from different areas of Basrah especially against (5)isolates of pathogenic bacteria aerobic Escherichia coli, Pseudomonas aeruginosa klebsiella spp., Staphylococcus aureus and anaerobic bacteria Propinipionibacterium acnesisolated from different skin diseases as well as antifungal activity against (5) Tinea corporis , Tinea pedis, Tinea unquium , Candida albicans ,Tinea cruris dermatophytes of skin- hair and nail besides candida albicans.Green and dry seeds showed high activity effect of both antibacterial and fungal.

### **الخلاصة :**

استخدمت المستخلصات النباتية لبذور نبات (النسلي) الخضراء والجافة التي تستوطن في محافظة البصرة، لدراسة فعاليتها المضادة للجراثيم والفطريات ضد (٥) عزلات جرثومية معزولة من إصابات جلدية مرضية مختلفة لمرضى راجعوا مستشفى البصرة العام، إضافة إلى عزلات مرضية تسبب حب الشباب، شملت العزلات *Escherichia coli*, *Pseudomonas aeruginosa*, *Klebsiella spp.*, *Staphylococcus aureus* و*Propinipionibacterium acnes* المعزولة من الأمراض الجلدية المختلفة. كما استخدمت (٥) عزلات فطرية جلدية مثل *Tinea cruris*, *Tinea corporis*, *Tinea pedis*, *Tinea unquium* إضافة إلى *Candida albicans* كذلك تم استعمال الفعالية ضد (٣) أنواع من الجراثيم القياسية *Staphylococcus aureus* ATCC29213، *Escherichia coli* ATCC25922 و*Pseudomonas aeruginosa* ATCC27853 أظهرت بذور نبات النسل فعالية تثبيطية لكلا الجراثيم والفطريات المستخدمة عند مقارنتها بالجراثيم القياسية التي تأثرت بفعالية مستخلص بذور النسل أيضا. كذلك أظهرت بذور نبات النسل الجافة فعالية ضد الجراثيم والفطريات الجلدية إضافة إلى المبيضات وبمستوى مشابه إلى بذور النسل الخضراء. أن نبات النسل التي تستوطن في البصرة (جنوب العراق) ذات مفعول مضاد لعزلات مرضية من فصائل الجراثيم المرضية المختلفة.

### **Introduction**

In the past peoples as its innate information were used many plant source as treatment of some diseases or others complication of this diseases, but they were not know the complication or side effects and not able to demonstrated this plants drugs, the aims of using this plant materials and its derivations was to recovery or healing the patients and fifty percent of pharmaceuticals are derived from the plants. All of plant are useful and rich in wide variety of secondary metabolites :such as tannins,terpenoids :alkaloid,and flavonoids<sup>(1)</sup>, and have applied as antibacterial or antivirus<sup>(2)</sup> an aqueous prepaion of this plant is used as acosmetic and medicine<sup>(3,4,5)</sup>.

### **Materials and Methods**

Green seed and dry seeds of Junchus Arabica had obtained from different regions of Basrah city. All of sample of this plant culture in Basrah especially in different region samples of were crushed with a pestle and mortar 50g of seeds added to 250 mL ethanol for three days with intermittent agitation . The mixture was filtered and crude extract was collected and then distilled at 37C° using in an oven.The crude plant extract was diluted into (25,12.5,6.35,3.12,1.56,0.78mL) and finally 0.39mL by using distilled water (sterile).Ten

different pathogenic isolates are used to test antibacterio- fungal activity of the seeds sample, also three standards bacteria were *staphylococcus aureus*, *Escherichia Coli* and *pseudomonas aeruginosa*.

This isolates were obtained from patient attending Basrah Hospitals. Colony of each standards microorganism was emulsified in 4 ml distilled water :yeilding about  $1 \times 10^8$  and used swab agar plates of diagnostic sensitivity test well of 5mm in diameter were made and 50 ml of each well plant dilution was put into each well with micropipette, each dilution was tested in duplicate. The plates were left at  $37C^{\circ}$  in incubator for 24 hours, inhibitor zones sized in millimeters recorded ,tetracycline and ciprofloxacilline were included as control.

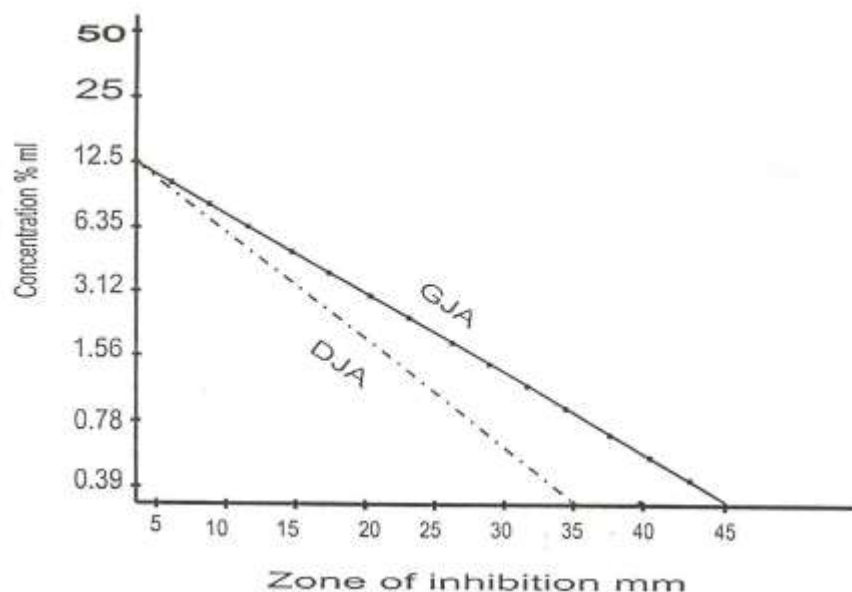
**Results**

Green and dry seed of the *Junchus Arabica* sample demonstrated antibacterial and antifungal. Activity against 10 different skin isolates microorganisms. Activity against this isolates were similar effect for all isolates . And dry seeds showed high level of activity for all 10 isolates (table 1) In figure 1 anti- *staphylococcus* activity of green seeds compared with dry henna and growth inhibitory activity up to a concentration 12.5% with inhibitory zone 35mm and, others bacteria and fungal isolates show also highest activity like *streptococcus pyogenes* and high effective with other pathogenic isolates, table 1. With green and *Junchus Arabica* plant

**Table 1:Antibacteial and antifungal activity of *Junchus Arabica* at 50% concentration and 45mm inhabitation zone.**

No.of isolates of both bacteria and fungus	Junchus Arabica extract	
	Green seeds	Dry seeds
<i>S.aureus</i>	***	***
<i>E.Coli</i>	***	***
<i>Klebsiella sp.</i>	***	***
<i>S.pyogenes</i>	***	***
<i>P.acnes</i>	***	***
<i>T.unguium</i>	***	***
<i>T.cruris</i>	***	***
<i>T.pedis</i>	***	***
<i>T.corporis</i>	***	***
<i>C.albicans</i>	***	***

\*\*\*=45mm zone  
of inhibition



**Figure 1: anti – *Staphylococcus aureus* activity of the *Junchus arabica* GJA, DGA ( G = green (fresh), D = Dry ).**

## Discussion

Quinones are present in *Junchus* in Arabica, and these aromatic rings with two groups of keton substitutions, its ubiquitous in nature and are characterized by these properties. These compounds being brown colored, and similar to others plants, play in the melanin synthesis pathway in human skin which occurs simply through oxidation and reduction, also presence of some enzyme like polyphenoloxidase<sup>(6)</sup> and with nucleophilic amino acid in proteins<sup>(7,8)</sup>, leading to inactivation of the protein and loss of function, Quinones may be inhibited cell growth in culture<sup>(9,10)</sup>.

*Junchus Arabica* are highly effective against the spectrum of bacteria and fungus as well as *Candida albicans* which are demonstrated in this project or aim of study, it may be that this plant contains active ingredients which made *Junchus Arabica* the highest effective antimicrobial agent. The most effective of *Junchus Arabica* is demonstrated by the inhibitory effect of all dilution on *Staphylococcus aureus* and other pathogenic isolates. *Junchus Arabica* contains flavonoids, quinones and phenol which have antimicrobial activity<sup>(11)</sup>, we have concluded that *Junchus Arabica* are highly effective against bacteria, and Dermophytes as well as *Candida albicans*. This extract of *Junchus Arabica* is the first done to demonstrate the activity of this plant against many bacterial and fungal isolates.

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