

Medical Plant Extracts

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Abstract :

Ethanolic extracted of Limon (peels),orange (peels),apple(peels),pomegranate (peels),apricot(seeds), peach(seeds),date palm (seeds), curcuma(stem),miswak(stem) were tested for antimicrobial activities by paper disk method and compared with tetracycline as standard antibiotic .The result revealed that the plant extacts more active against gram-positive bacteria (*Staphylococcus.aureus*) than against gram-nagtive bacteria (*Escherichia coli*),hence these plant extacts can be vitally used in treating various diseases caused by these pathogens.

Keyword: med, pharm., coli.,gram.

Introduction:

For over thousands of years now, natural plants have been seen as a valuable source of medicinal agents with proven potential of treating infections diseases and with lesser side effects compared to the synthetic drug agents.The aim of this research was to study effect of curd extracted of every one of plants ,which have been a valuable source of natural products for maintaining human health ,with more intensive studies for natural therapies, the use of plants compounds for pharmaceutical purpose has gradually increased in world⁽¹⁾ .Because of the side effects and bacteria resistance against the antibiotics ,the scientistdeveloped new drugs from natural sources such as plants ,which have been extensively used as alternative treatment for disease ^(2,3) ,as antibacterial⁽⁴⁻⁷⁾,antifungal ,antioxidants⁽⁸⁻⁹⁾ and anticancer⁽¹⁰⁾ due to that most of theseplants contain many active compounds such as flavonids ,tannis, saponins ,alkaloids, terpens ,heavy metals ⁽¹¹⁾ .

Plant extracts contents:

- The lemon peels (citrus limonum) :vitamine C, flavonides, essential oils ,metals:Fe,K,terpens ,phenole.
- The organ peels (citrus sinensis) :vitamine,A,B₁,B₂,metals:Fe,Ca,Iodine, Manganese nitrate,steoric acid ,essential oils ,flavonides ,terpens.
- The pomegranate peels(punicagranatum) :tannins ,fats, alkaloids,metals : K,Fe, peletierine ,phenols^(12,13).
- The apple (pyrusmalus):vitamine C ,sacarides ,fibers,metals,phenols,⁽¹⁴⁾.
- The date seeds (phoenixdactylifera):moisture,protein ,oils, curde fiber, carbohydrate,ash, faty acids, metals:Fe,Ca,P,K,carotein,phenol , vitamins:B₁,B₂⁽¹⁵⁾.
- The apricot seeds (prunusarmeniace.):moisture,protein,faty acids, phenols ,amino acids,carbohydrate,metals:K,Mg,Mn, PO₄⁻², ash, glycosides⁽¹⁶⁾.
- The peach seeds(prunuspersica):moisture,protein, carbohydrate,fatyasids,glycosides, phenols, metals:K,Mn,ash.
- The curcuma rhizomes (curcuma longa):oils, pigments, vitamins :E,D,A, ketones, lactones, risin, metals:Se,K ,antioxidant materials.



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- The miswak stems (salvadorapersica): tirety amine, alkaloids, chlorine, saponins, risin, sulfur, fluoride, tannins, vitamine:C, sterols^(17,18).

Material and methods:

Preparation of plant extracts:

The nine –plant materials were collected from various location in Iraq. The air dried plant materials were groun into powder using an electric blender ,50 gm of each powdered plant was extractsed with 200 ml of 80% ethanol ,then shaken at 120 rpm for 30 minutes and kept for 24h ,after that,each of the extacts was filtered through whatman no.1 filter paper ,after filtration of total extracts ,the extracts were evaporated to dryness, then prepare plant extracts in concentration (100mg/ml).

Antibacterial activity⁽¹⁸⁾:

Antibacterial activities of the plant extracts were determined against two bacterial strains are gram positive (*Staphylococcus.aureus*) and gram negative strain (*Escherichia.coli*) using disk diffiusion technique, 0.1ml of the bacterial suspensions was seedsed on agar ,a plant extraction was applied to a paper disc ,after evaporation of solvent , the paper discs were plased on agar bacterial ,incubation was performed at 37C for 24h.

A standared 1mg/ml tetracycline disc was used as positive control and as standared antibiotic. Antibiotic microbial was determined by measurement of inhibition zone around each paper disc. For each extract three replicate trials were conducted against each organism.

Results and discussion :

There is relationship between the chemical structures of the most abundant compounds in the plant extracts and microbial activity of tested plants⁽¹⁾ , from results which appeared high activity of the miswak due to high percentage of chemical compounds in this plant more than other plants.

The activities of the ethanolicetracts of all plants on both bacterial presented in table (1) and picture (1,2). The results indicated that the crude extracts of selected plants exhibited variable degrees of antimicrobial activity against the gram-positive bacterial (*Staphylococcus.aures*) and gram-negative bacterial (*Escherichia coli*) .

The ethanolic extracts inhibition the bacterial withzone inhibition ranged(from 7 to 26)mm compared to the tetracycline with zone of inhibition (from 23 to 30)mm.

From the results ,we noted that the miswak has high antibacterial activity against *S.aurues* and *E.coli* for the presence of alkaloids ,flavonides and saponines in it higher than other extracts which exhibit abroad spectrum of biological activity^(19,20) .

It is not surprising that there are differences in the antibacterial effects of plants extracts due to the phytochemical differences between species .

In general the activities against test bacterial culture used have shown good activity when compared with tetracycline as standared antibiotic.

The extractsofmiswakand selected plants have various biological properties as antibacterial⁽²¹⁾ ,antifungal⁽²²⁾ ,antitumor⁽¹⁰⁾ ,and antioxidant^(8,9)

Our data express that extracts of selected plants have a great potential as antibacterial compounds against microorganisms .thus,they can be used in treatment of infectious causedby resistantmicrobs.

Table (1):Antibacterial Activity of ethanolic extracts:

Plant extracts and antibiotic	Part used	Zone inhibition(mm)	
		Staph-aureus	E-coli
Salvadorapirsica	Stems	26	21
Curcuma iouga	Rhizomes	23	20
Citrus Limonum	Peels	21	17
Punicagranatum	Peels	19	15
Phoenixdactylifera	Seeds	17	14
Prunusarmeiace	Seeds	16	14
Prunuspersica	Seeds	14	10
Citrus sineusis	Peels	10	8
Pyrusmalus	Peels	8	7
Tetracyclin	drug	30	23

Plant extracts(100mg/ml), Tetracyclin:(1mg/ml)

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