Effect of Apium Graveolens and Syzygium Aromaticum Seed Extract on the Growth Inhibition of Microorganisms Isolated from Urinary Tract Infections

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Abstract

Background Many people believe that plants are only useful for food, oxygen, and wood, but this is not true; plants have a much greater role to play in our lives, and one of the oldest forms of treatment known to humanity is herbal therapy, according to recent studies and personal experiences. This is based on recent studies and people's personal experiences. Methodology Klebsiella and Staphylococcus bacteria were isolated from urinary tract infections, where Klebsiella bacteria were isolated on the medium of Macconkey agar and diagnosed using biochemical methods, while Staphylococcus bacteria were isolated on the medium of Mannitol Salt agar and diagnosed by the same methods. Weighing 100 grams of celery seeds, then they were washed well and grinded well and they took 500 ml of ethyl alcohol and extracted with saxolites at a temperature of 50 degrees Celsius for two hours, then the alcohol was evaporated and several concentrations of the extract were made. Result the area of the inhibited zone using different concentrations of celery extract 30, 60, 90 and 120 mg/100 ml on two types of Gram-negative bacteria Klebsiella and Gram-positive staphylococcus aureus. The concentration of 90 and 120 mg gave the best inhibition area on both types of bacteria 15, 21 cm the area of the inhibited zone using different concentrations of carnation extract 30, 60, 90 and 120 mg/100 ml on two types of Gram-negative bacteria Klebsiella and Gram-positive staphylococcus aureus. The concentration 120 mg gave the best inhibition area on both types of bacteria 14 cm in the inhibition of Klebsiella bacteria 23 cm in the inhibition of staphylococcus bacteria.

Keywords: Apium graveolens, Syzygium aromaticum,seed extract, inhibition of bacteria

1. Introduction

Celery with a strong smell, the Latin name (ALEXANDERS), or acronym, is a vegetable species of the genus Apiaceae [1]. Celery is a vegetable whose stems and leaves are eaten raw or included in cooking, and is generally considered a major component of salads [2] Celery is a different kind from parsley, which is similar in shape and is used as a substitute for it in salads and stews, such as fattah. It is a two-year herb that grows to a length of (1 m). [3] And the time of flower growth: from early summer to mid-summer, and the seeds ripen in the late summer and are almost black, which is why it is called the black weed [4].Celery is a useful vegetable for weight loss. Thanks to celery juice, which retains its vitamins and diuretic properties, it is used in diets to combat obesity. Also, celery salt is a good spice to be used in place of regular salt. It appeared from the analysis of celery that it contains vitamins A, B, C and minerals, including iron, iodine, copper, magnesium, potassium, calcium, phosphorous and calming chemical elements. Celery is suitable for all people with good health and is eaten raw, minced, and soft or chewed with the teeth, and only prevents people with weak intestines and people with indigestion [5, 6]. It is also recommended for people with obesity, obesity, diabetes, arthritis, rheumatism, and kidney inflammation [7, 8] Clove (Latin: Syzygium aromaticum) is a type of plant from the family of myrtle, an evergreen tree plant, has a conical shape, flowering with a four-parted flower, and has a strong aromatic smell, the average height of It can grow up to 12 meters in height. Dried seeds are used in numerous meals as well as in Arabic coffee as an additional flavoring ingredient [9, 10] The dried seeds also have a variety of medical uses, including anti-inflammatory properties. One of his many nicknames in the Arabian Peninsula is "Al-Awidi" or "Al-Misma." Cloves are said to be antiseptic and stomach sterilizing as well as a fever repellent, antiseptic and stomach sterilizer that can treat sores and headaches as well as prevent epidemics, aid digestion, relieve toothache and allergy infections, and alert the heart and stomach [11, 12]. Distillation can also be used to obtain the oil from the clove tree stem and leaves. It also aids in the process of quitting.

Isolation and identification of bacteria

Klebsiella and Staphylococcus bacteria were isolated from urinary tract infections, where Klebsiella bacteria were isolated on the medium of Macconkey agar and diagnosed using biochemical methods, while Staphylococcus bacteria were isolated on the medium of Mannitol Salt agar and diagnosed by the same methods.

Extraction of Apium graveolens seeds

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Weighing 100 grams of celery seeds, then they were washed well and grinded well and they took 500 ml of ethyl alcohol and extracted with saxolites at a temperature of 50 degrees Celsius for two hours, then the alcohol was evaporated and several concentrations of the extract were made [13].

Extraction of Syzygium aromaticum seeds

Weigh 50 g of clove seeds, then they were washed well and finely ground and took 250 ml of ethyl alcohol and extracted with saxolites at a temperature of 40 degrees Celsius for an hour, then the alcohol was evaporated and several concentrations of the extract were made [14].

2. Result and Discussion

Table 1 Celery seeds in inhibiting the growth of bacteria isolated from urinary tract infections

Dependent Variable: inhibition zone			
type of bacteria	concentration of Apium graveolens extract mg/dl	Mean	Std. Deviation
klebsiella pneumonia	30 mg/dl	11.00	1.000
	60 mg/dl	13.00	1.000
	90 mg/dl	15.00	1.000
	120 mg/dl	21.00	1.000
	amikacin	27.67	1.155
	Total	17.53	6.346
Staphylococcus auerus	30 mg/dl	12.00	1.000
	60 mg/dl	15.00	1.000
	90 mg/dl	18.00	1.000
	120 mg/dl	23.00	1.000
	amikacin	28.00	1.000
	Total	19.20	5.967

Table 1 shows the area of the inhibited zone using different concentrations of celery extract 30, 60, 90 and 120 mg/100 ml on two types of Gram-negative bacteria Klebsiella and Gram-positive staphylococcus aureus. The concentration of 90 and 120 mg gave the best inhibition area on both types of bacteria 15, 21 cm in the inhibition of Klebsiella bacteria 18, 23 cm in the inhibition of staphylococcus bacteria. Apigenin and luteolin are found in celery. Many other plant components with strong antioxidant capabilities can be found in it as well. Some examples are p-Coumaric acid, kaempferol, selinene, and limonene. Compounds such as these can help prevent cell damage caused by exposure to both harmful and non-destructive chemicals. Since free radical damage can lead to inflammation and chronic diseases such as heart disease, cancer, or arthritis, Celery's antioxidant content is particularly strong in the kind that can repair free radical damage. Ferulic acid and caffeic acid are just a few of the celery's beneficial antioxidants. Celery is also an effective home remedy for a wide range of inflammatory conditions including liver and kidney infections, seizures, joint pain and irritable bowel syndrome. Celery can also be used to treat skin disorders and urinary tract infections.

Table 2 Calculating the least significant difference for the effect of celery extract on bacteria isolated from urinary tract infections

LSD					
(I) concentration of Apium graveolens extract mg/dl	(J) concentration of Apium graveolens extract mg/dl	Mean Difference (I-J)	Std. Error	Sig	nterval
30 mg/dl	60 mg/dl	-2.50-*	.587		.000
	90 mg/dl	-5.00-*	.587		.000
	120 mg/dl	-10.50-*	.587		.000
	amikacin	-16.33-*	.587		.000
60 mg/dl	30 mg/dl	2.50*	.587		.000
	90 mg/dl	-2.50-*	.587		.000
	120 mg/dl	-8.00-*	.587		.000
	amikacin	-13.83-*	.587		.000
90 mg/dl	30 mg/dl	5.00*	.587		.000
	60 mg/dl	2.50*	.587		.000
	120 mg/dl	-5.50-*	.587		.000
	amikacin	-11.33-*	.587		.000
120 mg/dl	30 mg/dl	10.50*	.587		.000
	60 mg/dl	8.00*	.587		.000
	90 mg/dl	5.50*	.587		.000
	amikacin	-5.83-*	.587		.000
amikacin	30 mg/dl	16.33*	.587		.000
	60 mg/dl	13.83*	.587		.000
	90 mg/dl	11.33*	.587		.000
	120 mg/dl	5.83*	.587		.000
Based on observed means. The error term is Mean Square(Error) = 1.033.					
*. The mean difference is significant at the.05 level.					

The concentration of 90 and 120 mg of celery extract gave the highest significant differences compared to the rest of the concentrations compared to the antibiotic Amkasin in inhibiting Klebsiella and staphylococcus bacteria, and this indicates the presence of many effective compounds that inhibit these bacteria as shown in Figure 1. Coronary heart disease, which often results in mortality, is made more likely by high blood pressure. High blood pressure can be treated naturally and at home, which is a blessing. Anti-

hypertensive characteristics of celery seed extracts can be used to treat high blood pressure. The potassium and calcium content of celery is very high. Celery has a calming impact on the blood pressure. Improved heart health can be achieved with the use of celery extract.

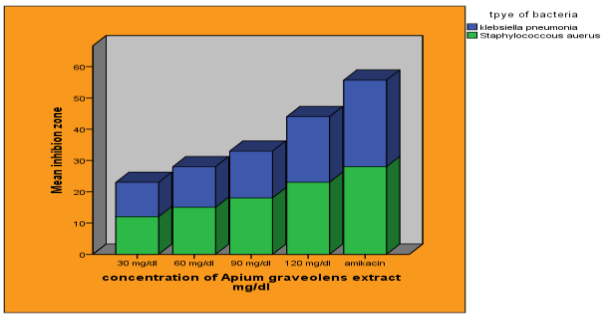

figure 1 Celery seeds in inhibiting the growth of bacteria isolated from urinary tract infections

table 3 carnation seeds in inhibiting the growth of bacteria isolated from urinary tract infections			
Dependent Variable: inhibion zone			
tpye of bacteria	concentration of Syzygium aromaticum extract mg/dl	Mean	Std. Deviation
klebsiella pneumonia	30 mg/dl	9.00	1.000
	60 mg/dl	9.00	1.000
	90 mg/dl	11.00	1.000
	120 mg/dl	14.00	1.000
	amikacin	22.67	2.082
	Total	13.13	5.397
Staphylococcous auerus	30 mg/dl	6.00	1.000
	60 mg/dl	10.67	1.528
	90 mg/dl	13.00	1.000
	120 mg/dl	23.00	1.000
	amikacin	28.00	1.000

Table 3 shows the area of the inhibited zone using different concentrations of carnation extract 30, 60, 90 and 120 mg/100 ml on two types of Gram-negative bacteria Klebsiella and Gram-positive staphylococcus aureus. The concentration 120 mg gave the best inhibition area on both types of bacteria 14 cm in the inhibition of Klebsiella bacteria 23 cm in the inhibition of staphylococcus bacteria. Cloves have been shown to have antimicrobial properties, which means they can help stop the growth of microorganisms such as bacteria. One test tube study showed that clove essential oil killed three common types of bacteria, including Escherichia coli, a strain of Furthermore, the antibacterial properties of cloves can help promote oral health. Studies have also proven that the compounds extracted from cloves to stop the growth of two types of bacteria contribute to attacking gum disease. In combination with regular brushing and good hygiene. For a proper mouth, the antibacterial effects of cloves may benefit oral health.

Table 4 Calculating the least significant difference for the effect of carnation extract on bacteria isolated from urinary tract infections				
Dependent Variable: inhibion zone				
LSD				
(I) concentration of Syzygium aromaticum extract mg/dl	(J) concentration of Syzygium aromaticum extract mg/dl	Mean Difference (I-J)	Std. Error	Sig.
30 mg/dl	60 mg/dl	-2.33-*	.699	.003
	90 mg/dl	-4.50-*	.699	.000
	120 mg/dl	-11.00-*	.699	.000
	amikacin	-17.83-*	.699	.000
60 mg/dl	30 mg/dl	2.33*	.699	.003
	90 mg/dl	-2.17-*	.699	.006
	120 mg/dl	-8.67-*	.699	.000
	amikacin	-15.50-*	.699	.000
90 mg/dl	30 mg/dl	4.50*	.699	.000
	60 mg/dl	2.17*	.699	.006
	120 mg/dl	-6.50-*	.699	.000
	amikacin	-13.33-*	.699	.000
120 mg/dl	30 mg/dl	11.00*	.699	.000
	60 mg/dl	8.67*	.699	.000
	90 mg/dl	6.50*	.699	.000
	amikacin	-6.83-*	.699	.000
amikacin	30 mg/dl	17.83*	.699	.000
	60 mg/dl	15.50*	.699	.000
	90 mg/dl	13.33*	.699	.000
	120 mg/dl	6.83*	.699	.000
*. The mean difference is significant at the.05 level.				

The concentration 120 mg of carnation extract gave the highest significant differences compared to the rest of the concentrations compared to the antibiotic Amkasin in inhibiting Klebsiella and staphylococcus bacteria as the figure 2. To counteract free radical damage, which has been linked to the development of chronic diseases, antioxidants are needed. The chemical eugenol, found in

cloves, has been demonstrated to do just that. In one study, researchers showed that eugenol prevented oxidative damage produced by free radicals five times better than Vitamin E. A diet rich in antioxidant-rich foods, such as cloves, can also benefit your overall health

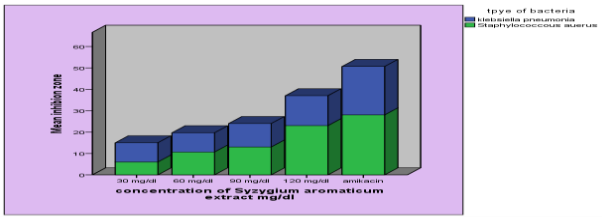

Figure 2 carnation seeds in inhibiting the growth of bacteria isolated from urinary tract infections

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