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RESEARCH ARTICLE

ANTI-MIMIC FACTS OF PEACE.

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Abstract

This work was carried out antimicrobial effect on seed dill. The survey was done by diffusion dilution method. By using MVC, and the MIC data is compared nedestilisane distilled and fractions of essential oil of dill seed, which contains D-linolenum (70%) and karvan (30%). It has been proven that the distilled fractions efficiently because they have a higher concentration of active ingredients. It was also shown that the fractions that were enriched with terpenes have a better effect of stopping the growth of certain bacteria, in the treatment of those fractions that were tested microorganisms.

Introduction:-

Manufacturers and food consumers express a desire to reduce the use of chemically obtained preservatives in food production. In order to reduce the need for artificial preservatives, natural spices, culinary plants, and aromatic herbs that exhibit antimicrobial activity are increasingly used in food production. The etheric oils of these plants represent bioactive substances. The chemical composition and antimicrobial properties of properties from different plant species have been proven using various experimental methods. (Conner and Beuchat, 1984; Deans and Ritchie, 1987; Conner et al., 1993; Beuchatet et al., 1994).

A diffusion and dilution method was used to investigate the antimicrobial effect of the oil of the hernia.

Material And Methods:-

Mirodija, (Anethumgraveolens) is a spicy, fragrant plant that breeds and propagates itself, is known to the people as an anita, dil, copper. It originates from Southeast Asia. One-year-old is a plant with a thin, spiked root. The stem is upright, round, eroded, hollow height up to 120 cm, the leaves are divided between 3 and 4 times perasto. At the top of the stem are small flowers of distinctively yellow color. The highest concentration of medicinal and aromatic substances is located in the fruits of the plant containing 3-4% essential oil; about 18% of nitrogen compounds and about 6% of pectin. The greatest aroma of peacock has before it flourishes (Richard Wilfort et al., 1989). The main medicinal ingredient is an essential oil that is produced by distillation with water vapor of milled ripe fruits. The ethereal oil is a colorless, easy-moving liquid of pleasant and strong smell. The main ingredient of essential oil is lemon (70%) and carvon (30%) (JosifPancic 1986).

Methods for determining the antimicrobial activity of the activity include different methods in relation to the use of nutrients, microorganisms, incubation temperatures, etc. (Gergis et al., 1990; Janssen et al., 1986; Panizzi et al., 1993). The methods most commonly used to determine antimicrobial effects are diffusion and dilution.

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The diffusion method involves the movement of liquid through a tank. Different types of reservoirs are applied, including filter paper, porcelain or stainless steel cylinders, and holes created in a nutrient medium.

The diffusion method works on the principle that the substance to be tested is brought into contact with an inoculated nutrient medium and after incubation the diameter of the clear zone around the reservoir is measured (the inhibition diameter is measured). The Inoculated system can be kept at a low temperature before incubation for several hours, which favors the diffusion of microbial growth, thereby increasing the inhibition diameter. For the diffusion method, important parameters are the amount of the antimicrobial substance (essential oil and extract) and the diameter of the reservoir.

Using the diffusion method, in the process for determining the antimicrobial activity of the two processes proceed independently (Janssen et al., 1986): the transport of the substance from the reservoir to the nutrient medium and the exponential test of the organism. After a certain period (critical time), microorganisms grow to such a density that the concentration of the substance above the growth inhibitory value can no longer inhibit growth. There fore, the inhibition zone is determined by the critical density of the microorganisms, so the incubation period is not important. If the transport is carried out only by diffusion, and only at a horizontal level, where the concentration of antibiotic at the tank's limit and the nutrient medium depends on the concentration of the antibiotic in the reservoir and is constant during the entire test period, where the diffusion coefficient D is constant, the equation (Cooper et al al., 1972).

$$x^2 = 4DT_{crit} \ln(\tfrac{m}{m'})$$

x - distance between the reservoir with the antibiotic and the boundary of the inhibition zone

D - diffusion coefficient

- critical weather

m - quantity or concentration of antibiotics in the reservoir

m^2 - critical amount or concentration of antibiotics that inhibits test organisms under diffusion conditions

The size x is dependent on the coefficient D, and the comparison of the antimicrobial activity of the essential oil or antibiotic extract can not be performed. This means that the inhibitory zone can be sampled with a very active substance present in a very small amount or a low-effect substance present at a high concentration.

A relative measure of the smallest amount of an antimicrobial agent that inhibits growth (cell division) of the microorganism is the MIC value that has been tested and its values are displayed in the discussion section and the results. The MIC value is relative due to changes in the conditions under which it is determined, which are pH, temperature, inoculum and incubation time.

The advantage of the diffusion method with respect to other methods is that a small amount of sample is used, as well as the possibility of simultaneous testing of more compounds on the plate in relation to one microorganism.
A dilution method or dilution method requires a homogeneous dispersion in water. This method determines the MLC values, growth curves and antiseptic activity. The MLC value represents the lowest concentration of an antimicrobial effect that kills 99.9% test microorganisms. (Anonymous, 1997).

In the dilution method, the treated samples are mixed with an inoculated liquid nutrient medium (Bergh and Vlietinck, 1991). After incubation, the growth of microorganisms can be determined visually or turbidimetrically by comparing a culture test with a control culture in which there is no sample to be tested. A series of dilution of the sample is made, and then the test organism is inserted. The dilution method is characterized by a large liquid. This method is suitable when a high degree of sensitivity is required. It differs from the diffusion method in that it is less suitable for qualitative work (eg fast testing of a large number of samples). The dilution method is the only method to test whether the antimicrobial agent is bactericidal or is only bacteriostatic at different concentrations.

For the purpose of better dissolution of the samples, surface active agents, such as polysorbatum 80 (Janssen et al., 1987), and tributirin (due to the liposoluble character of the CO_2 extract) are added to the substrate (Nadjalin et al., 1997). Adding an emulsifier introduces an additional component related to the activity and possible interactions.

In order to determine the best and the highest quality antimicrobial activity of the test substance, some factors are applied. Factors that depend on antimicrobial activity are mainly nutrients and microorganisms. Nutrient-containing ingredients may react with the components of the antimicrobial agent and activate or inactivate them. The content of divalent cations must be known and standardized, and the pH value is stable (Anonymous et al., 1997). Measured activity can sometimes be quite different for certain micro-organisms, even in one population there may be resistant layers, which would make it necessary to list the types of microorganisms tested (Janssen et al., 1987). Low inoculum density and a thin layer of the medium give higher inhibitory diameters (Janssen et al., 1987). If the zone is diffusion, the boundary is a line where 80% of the inhibition is reached. Microaerophilic conditions can reduce the sharpness of the edge or give zones of different sizes. Secondary effects of antimicrobial preparations, e.g. An antibiotic, such as a lysis, may affect the size of the zone (Cooper et al., 1972).

Results And Discussion:-

Studies have shown the effect of agar on the solubility of some oil components. The higher the agar content, the lower the solubility of some of the oil's ingredients.

For the purpose of better dissolution of the samples (in this case, seed of the myrrh), using the dilution method, surface-active substances polysorbatum 80 (Janssen et al., 1987) and tributirin (Nadjalin et al., 1997) are added to the substrate. Adding an emulsifier introduces an additional component related to the activity and possible interactions. Antimicrobial activity was 50 times higher when the dispersion solvent dimethylsulfoxide (DMSO) was not used. The agar suspension of 0.2% is sufficient to obtain a stable dispersion of essential oil in a liquid medium compared to the dispersions obtained with Tween 80 (0.25%) and ethanol 0.2%. In addition, MIC and MLC values for different bacterial species in the presence of agar are significantly less than those observed in the presence of Tween 80 or ethanol. This proves the fact that solvents and detergents, which are often used in antimicrobial studies, significantly reduce the antibacterial activity of essential oils.

The mineral oil is composed of equal volumes of carvans and D-limonene, which together account for 97.5% of the ingredients identified by gas chromatography of mass spectroscopy. Fractions with high values were obtained by distillation of crude essential oils from seeds and fruits of the myrrh.

Table 1 shows the main components of the volatility of crude essential oils and the distillation fraction. The MVC results are presented, these results represent the most important, the main parts of the essential oil components for a given fraction.

Table 1:-MVC results expressed in% essential oils of oil and distillation fractions obtained by gas chromatography and indentified by mass spectroscopy

Fraction	Oil	1	2	3	4	5	6	7
D-limonum	46.3	92.9	98.1	99.5	59.2	1.5		
Karvan	49.5				0.6	66.0	97.5	99.7
Dihydroxycarvan	0.9				13.6	17.2	1.2	
Cis	0.8				12.4	12.4	0.8	
In total	97.5							

The fractions listed in Table 1, obtained from crude oils, were obtained from vacuum and derived from chromatographic gas analysis. Mass data were recorded on the HP 589059 system. The mass spectrometer worked with an ion source at a temperature of 250°C, ionizing energy of 70 eV, a scanning range of 25-250 amu, a threshold of 400, and a frequency of 2.6 scanns / s. The resulting ingredients are identified with HPG1034C (chemically-staged software containing HOG1034A Wiley (138.1) PBM library. Essential oils of the myrrh are obtained from Northem Essentials.

MICs for essential oils of myrrh and their fractions are determined by the method of diluting broth with 0.15% agar according to suggestions. The antimicrobial activity of the mixture of oily fractions was determined by the modified test table it described (Barry et al., 1976). The solutions of the two tested fractions were prepared in TSYE + 0.30% agar and were shown by the MIC, but the MIC essential oils of the myrrh and the distilled fraction prevented the growth of 3 grams of bacteria, 2 grams of bacteria and one yeast, which is and shown in Table 2.

Table 2:-MIC (minimum infibit concentration) of essential oils and distilled fractions of spruce (volume% / volume)

Fraction	1	2	3	4	5	6	7
Psusomonas fragi	0.12	0.10	0.13			0.37	0.33
Escherchia coli O157:H7	0.13	0.10	0.10		0.23	0.20	0.20
Salmonella typhimurium	0.20	0.23	0.10		0.27	0.20	0.23
Listeria monocytogenes	0.40	0.30	0.30			0.27	
Staphylococcus Aureus	0.23	0.20	0.10	0.43	0.40	0.17	0.20
Saccharomyces Cerevisiae	0.02	0.04	0.09	0.12	0.17	0.10	0.08

Table 2 shows the MIC essential oils and distilled fractions of myrrh. Essential oils of peacock have the lowest activity according to test microorganisms. Distilled fractions are more efficient because they contain a higher concentration of active ingredients. Gram-positive and gram-negative bacteria were inhibited with D-limonene (fractions 1 and 3), but this required a pure extract, followed by a rapid decline in activity when concentrations fell below 59.2% (fraction 4). All bacterial strings were stopped by fractions rich in carvanoma (fractions 5-7), although the caravan seems less effective than D-linoneme. It is interesting to note that essential oils of the peacock have low activity against gram-negative bacteria, despite the fact that they contain 46.3% of D-linonene and 49% of carvans that are effective in enriched fractions.

Essential oils of the myrrh inhibit the growth of many microorganisms (Deans and Ritchie, 1987; Nakatani et al., 1994). Crude essential oils from myrrh are effective against some bacteria and one yeast in a concentration of less than 0.5%. Accordingly, it can be said that Gram-positive bacteria are much more sensitive than oil.

Each crude essential oil contains a mixture of compounds obtained by fractional distillation. The antimicrobial activity spectrum of the fractions used in the experiment, derived from those measured in crude oils, suggests that complex interaction leads to increased activity. This is particularly characteristic of the mineral oil, which is a relatively weak antimicrobial substance, although it contains a similar amount of D-linonen and carvans. Fractions that are enriched with terpenes have a better effect of stopping bacterial growth from those fractions that have been tested by microorganisms. This suggests that the tested distillates have better antimicrobial capabilities than crude oils in reactions with constant chemical components.

Conclusion:-

In this paper we examined the antimicrobial activity of essential oils of sperm seeds, using the dilution and diffusion methods that have been described. Factors that influence the determination of antimicrobial activity (nutrients and microorganisms) were also mentioned. The general characteristics of the peacock are also given. The literature data on MVC and MIC essential oils and distilled fractions of seeds of seeds were analyzed. The experiment has proven that the tested distillates have better antimicrobial capabilities than raw oil from sperm seeds because they contain a higher concentration of active ingredients in reactions with constant chemical components. This was expected and it can be concluded that the diffusion and dilution methods are really adequate and relevant in this type of test.

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