Chemical Composition and Antimicrobial Activities of Cold-Pressed Oils Obtained From Sesamum indicum and Papaver somniferum

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Abstract: The aim of this study is to put forward the antimicrobial activity of cold pressed oils obtained from seeds Sesamum indicum and Papaver somniferum.

Oils of these seeds were analysed for their antibacterial and antifungal activities by the disk diffusion and MIC tests against fifteen microorganisms, *Staphylococcus epidermidis DSMZ 20044, Staphylococcus aureus ATCC 25923, Salmonella typhimurium SL 1344, Salmonella kentucky, Salmonella infantis, Salmonella enteritidis, Pseudomonas fluorescens P1 ATCC 13075, Pseudomonas aeruginosa DSMZ 50071, Klebsiella pneumoniae, Escherichia coli ATCC 25922, Enterococcus faecium, Enterococcus faecalis ATCC 29212, Enterobacter aerogenes* ATCC 13048, *Candida albicans DSMZ 1386 and Bacillus subtilis* DSMZ 1971. The results were compared against 11 standard antibiotics, which are cefazolin, clindamycin, chloramphenicol, ciprofloxacin, amoxicillin/clavulanic acid, sulfamethoxazole/trimethoprim, ceftriaxone, gentamicin, ampicillin, cephalothin, cefuroxime and vancomycin. The extracts were also chemically analysed by using GC-MS.

As a result, Papaver somniferum oil is observed to be active against all microorganisms, where Sesamum indicum oil is no active against all microorganisms

Keywords: Chemical Composition, Cold-Pressed Oil, Antimicrobial Activity, Sesamum indicum, Papaver somniferum .

Introduction:

Sesamum is most common in equatorial regions everywhere in the world since old centuries. The Sesame seeds are prosperous exporter of protein. İn addition, it is one of the most product provide for oil production (Anilakumar, K. R., et al, 2010). Sesame includes the essential fatty acids (EFAs) (Anilakumar, K. R., et al, 2010) e.g. linoleic acid and high levels of lignans that contain of sesamin, sesamol and sesamolin. Sesame adds its use in food also is a part in a soap, cosmetics, lubricants and medicines. The Sesame seeds moreover consist two rare substances are sesamin and sesamolin have a good effect on cholesterol-lowering in humans and to limit high blood pressure disease (Anilakumar, K. R., et al, 2010).

Sesame (Onsaard, E. 2012)seed has oil content (around 50%) than most of the known oil-seeds although its production is far less than the major oil seeds such as soybean or rapeseed, sesame oil is generally noted as high-cost and high-quality oil, it is one of the most stable edible oil despite its high degree of unsaturation, a presence of type natural antioxidants it is lignan of sesame oil and has useful physiological effects. In addition, these were note reported to increase the hepatic mitochondrial and the peroxisomal fatty acid oxidation rate in

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laboratory animals (Anilakumar, K. R., et al, 2010; Hwang, L. S. 2005). Cephalin, a phospholipid from sesame seed has been reported to possess hemostatic activity. The oil also known as gingelly oil or til oil. In addition, the sesame has large-scale medical and pharmaceutical applications. The least that can be said it is laxative, emollient and demulcent. Sesame seed and its green leaves may be used as a medicineis reflected the antibacterial activity of Sesame seeds against Staphylococcus and Streptococcus as well as common skin fungi, such as athlete's foot fungus has also been well recognized (Furumoto, T., et al, 2003). The Sesame oil is used to control in both the High-Density Lipoprotein cholesterol (HDL) and the lower Low-Density Lipoprotein cholesterol (LDL). Pure sesame oil is prosperous with antioxidant ingredients like lignans allowing for greater shelf-life of foods. Additionally improving their flavour and savour, The sesame use as antioxidant also the sesame oil includes a large quantity of linoleate in triglyceride that selectively inhibits malignant melanoma growth. Off -late, the work has also been oriented towards the production of biodiesel from sesame seed oil as a viable alternative to the diesel fuel (Lawson, J. A., & Baosman, A. A. 2010). The ethnobotanical and medicinal uses of this commercially necessary, nutritionally rich oil seed need to be investigated for preferable employment (Anilakumar, K. R., et al, 2010), Hwang, L. S. 2005).

It is famous delicacy food, used for direct consumption. Poppy plants have the ability to collect heavy metals (I Ivan, S., & Jozef, F. 2011). Papaver somniferum one of the most medical seeds useful variety (Ng, C. C., et al, 2016). Opium poppy belong to the sction papaver of the tribe papavereae, and of sub-family papaveroideae (Tétényi, P. 1997).

Papaver somniferum (poppy) is most common crop in countries such as China, India,

Czechoslovakia or Turkey. Poppy is grown mainly for its content of opium and oil seeds. In addition the seeds of Poppy are used approximately particularly for their oil (Prochazka, P., & Smutka, L. 2012).The seeds of Poppy include to 50% of oil and have high levels of oleic and linoleic acids, aforementioned crop as a source of linoleic acid, this crop is distributed among the important (Musa Özcan, M., & Atalay, Ç. 2006)industrial oil plants in Turkey. Poppy seed oil appears to be of good quality for human consumption since it is generally rich in polyunsaturated fatty acids (Gutiérrez, R. M. P., & Perez, R. L. 2004); Ozkaya, A., et al, 2012).

Chaudhry et al., (2008) conducted studies on Antibacterial activity of aqueous infusions and aqueous decoctions of Kalonji (Nigella sativa L., Ranunculaceae), cumin (Cuminum cyminum L., Umbelliferae) and poppy seed (Papaver somniferum L., Papaveraceae) were investigated against 188 bacterial isolates belonging to 11 different genera of Gram +ve and Gram -ve microorganisms isolated from the oral cavity of apparently healthy individuals. The disc diffusion method was performed to test the antibacterial activity (Chaudhry, N. M. A., & Tariq, P. 2008).

Shittu et al., (2007) conducted studies on ethanolic, methanolic and aqueous extracts of Sesame leaves were studied for their in-vitro antimicrobial activity against both Gram positive and Gram negative micro-organisms and Yeast using the agar diffusion method and GC-MS analysis (Shittu, L. A. J., et al, 2008).

Materials and Methods

Plant samples

Sesamum indicum and Papaver somniferum seeds were purchased from a local company in Turkey (Özşen Lokman Hekim).

Oil extraction

The oil was obtained through a cold-press production (MP-001 Screw Press, Turkey (fig 1). One kilogram of each seed was pressed, filtered and allowed to stand overnight. After 24 hours the upper clear layer of oil was separated through a separation funnel. Obtained oils were kept in cold (4°C) and dark until used in test. The yield percentage for all plant samples were found to be 80% (w/w) for Sesamum indicum, 50% (w/w) for Papaver somniferum (fig 2).

Figure 1: Pressing machine oil that use to extract oil.

Figure 2: 3 kilogram of for Sesamum got 80% of oil as shown in A, P. somniferum got 50% of oil as in B.

Microorganisms

Several Gram positive and Gram negative microorganisms were selected to analyse the activity of the oils. The fifteen microorganisms used in this study are Staphylococcus epidermidis DSMZ 20044, Staphylococcus aureus ATCC 25923, Salmonella typhimurium SL 1344, Salmonella kentucky, Salmonella infantis, Salmonella enteritidis, Pseudomonas fluorescens P1 ATCC 13075, Pseudomonas aeruginosa DSMZ 50071, Klebsiella pneumoniae, Escherichia coli ATCC 25922, Enterococcus faecium, Enterococcus faecalis ATCC 29212, Enterobacter aerogenes ATCC 13048, Candida albicans DSMZ 1386 and Bacillus subtilis DSMZ 1971**.**

Inoculum

Microorganisms used in this study were cultured in line with their requirements as stated in some previous studies (Altuner and Çetin, 2009; Altuner and Canli, 2012; Altuner, E. M., et al.2018;Sana I.souliman., et al ,2019;Canlı Altuner & Akata, 2015).

For inoculum, microorganisms were suspended in sterile physiological saline solution (Canlı, Altuner, Akata, Türkmen & Üzek, 2016; Canlı, Yetgin, Akata & Altuner, 2016a and b; Canlı, Yetgin, Akata & Altuner, 2017a) and to adjust equal the number of the colonies in the solution, 0.5 McFarland standard was used (Hammer, Carson & Riley, 1999; Altuner, Akata & Canli, 2012a and b).

Disk diffusion method

Diffusion method adopted according to Kavanagh. We have prepared a petri dish, then took anointed of the bacteria and fungi that prepared in a test tube by sterile swabs. Wipe swap on plate gently by spreading process, rotate the plate 60 degrees clockwise and again spread the bacteria going left to right, top to bottom After that, distributed the discs that contain extracts (oil) by a sterile needle with different concentration 15 µg/disc, 5 µg/disc and zero for control, plates were incubated at 37°C for 18 to 24 After the incubation, the plates were examined for inhibition zone. The inhibition zone was measured by using a ruler and recorded. The test was repeated three times to ensure reliability as shown in (fig 3).

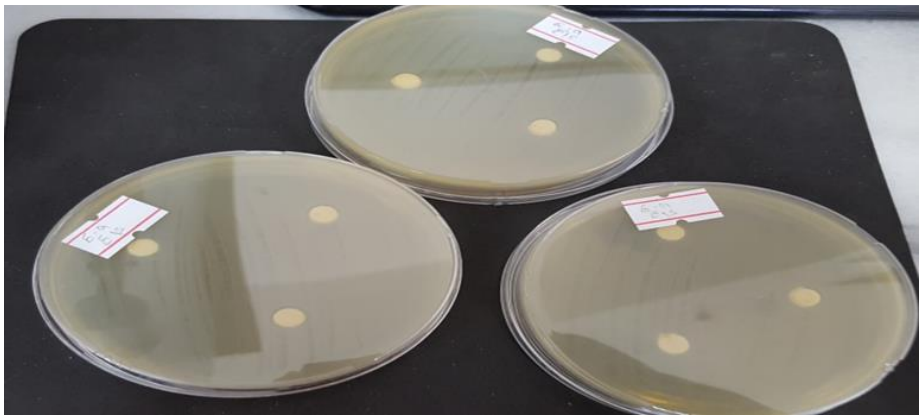

Figure 3: repeated three times to ensure reliability.

Determination of Minimum Inhibitory Concentration (MIC)

The MIC values for all oil samples were identified as stated previously (Balouiri, Sadiki & Ibnsouda, 2016). The concentration range was between 100 to 0.195 µg/mL.

Determination of chemical composition by Gas Chromatograph Mass Spectrometer (GC-MS)

For the identification of chemical components, each sample was analyzed by GCMS QP 2010 Ultra (Shimadzu) equipped with Rtx-5MS capillary column (30m·0.25 mm; coating thickness 0.25 μm). Analytical conditions were injector temperature, 250 ∘C; carrier gas Helium at 1 mL/min; injection mode: split, split ratio 1:10; volume injected: 1 μL of a solution in hexane of the oil; and oven temperature programmed from 40∘C to 240˚C at 4∘C/min, pressure:100kPa, purge flow:3 ml/min. The MS scan conditions used included a transfer line temperature of 250˚C, an interface temperature of 250˚C, an ion source temperature of 200˚C. Identification of the constituents was based on comparison of the

retention times and on computer matching against Wiley Data library. When possible reference compounds were cochromatographed to confirm GC retention times.

Controls

Empty SAD was used as negative controls for disk diffusion test and sterilized broth medium for MIC test. In addition, microorganisms were inoculated in Mueller Hinton broth in order to control the viability of each microorganism.

As positive controls eleven standard antibiotics, which are cefazolin, clindamycin, chloramphenicol, ciprofloxacin, amoxicillin / clavulanic acid, sulfamethoxazole / trimethoprim, ceftriaxone, gentamicin, ampicillin, cephalothin, cefuroxime and vancomycin are used.

statistical Analysis

ANOVA, Decriptive and Homogeneous were performed to test for defferencd in size of inhibitory zone formed by oil for Prunus amygdlus against ddifferent bacteria by IBM spss version 24.

Results and Discussion

The results obtained by GC-MS analyses of cold-pressed oils of Papaver somniferum and Sesame are presented in (Table 1, 2, 3 and 4). We chose the components more than 3 percent as the main components and other components have seen tables. Twenty-six compounds were identified in fatty acid scanning of Sesamum indicum. GC-MS analyses revealed that S. indicum contained Hexadecanoic acid, methyl ester (6.75%), 9,12-Octadecadienoic acid (Z,Z)-, methyl ester (31.19%), 9-Octadecenoic acid, methyl ester, (E)- (28.40%), Methyl stearate (6.02%), 9-Octadecenoic acid, 1,2,3-propanetriyl ester, (E,E,E)- (15.29%; This compound has seen in three different retention times) as the major compounds as showen (Table1).

Table. (1). Sesamum indicum: Fatty Acid Scanning Results.

Peak	*R,Time*	*Area*	*Area %*	*Name*
1	5.974	7208	0.01	Benzene1,2-dimethoxy-4-(2-propenyl)- (CAS)
2	18.637	23676	0.04	9-Hexadecanoic acid, methyl eser(Z)-
3	18.762	56611	0.09	9-Hexadecanoic acid, methyl eser(Z)-
4	19.307	4386672	6.75	Hexadecanoic acid, methyl eser
5	21.793	16225	0.02	Hexadecanoic acid, methyl eser(CAS)
6	23.536	20272065	31.19	9.12-Octadecadienoic acid.(Z.Z)-,methyle ester ol
7	23.677	1845837	28.40	9. -Octadecadienoic acid, methyl ester(E)
8	23.755	619858	0.95	9. -Octadecadienoic acid(Z)-,, methyl
9	24.214	3915993	6.02	Methyl stearate
10	24.601	1960856	3.02	9-Octadecadienoic acid, 1,2,3-propanetriyl ester, (E,E,E)-
11	27.564	52993	0.08	Copaneoctanoic acid, 2-[[2-[(2-ethulcyclopropylmethyl]cyclopрppyyl]me
12	27.671	36169	0.06	Hexadecanoic acid, methyl eser(CAS)
13	28.141	902146	1.39	Cis-11-Eacosatrienoic acid, methyl ester
14	28.700	572652	0.88	Eacosatrienoic acid, methyl ester (CAS)
15	29.043	102657	0.16	Hexadecanoic acid, methyl eser(CAS)
16	29.343	181403	0.28	Tricycl0[20.8.0.0(7.16)]triacotane, 1(22),7(16)-diepoxy-

17	29.907	362371	0,56	3-Tetradecanyoic acid
18	30.135	517915	0.80	E,E,Z-1,3,12-Nomadectrinoic-5,4-diol
19	30.567	626442	0.96	Oleyl oleate
20	30.885	201009	0.31	9-Octadecadienoic acid, 1,2,3-propanetriyl ester, (E,E,E)-
21	32.034	9726267	14.96	9-Octadecadienoic acid, 1,2,3-propanetriyl ester, (E,E,E)-
22	32.649	1333608	2.05	Glycidol stearate
23	33.340	327181	0.50	Methyl 20-methyl-heneicosanoate
24	36.028	231214	0.36	5,8,11,14-Eacosatetraenoic acid, ethyl ester,(allZ)-
25	39.417	54163	0.08	Glycidol stearate
26	40.417	53156	0.08	Tetracosanoic Acid, Methyl Ester

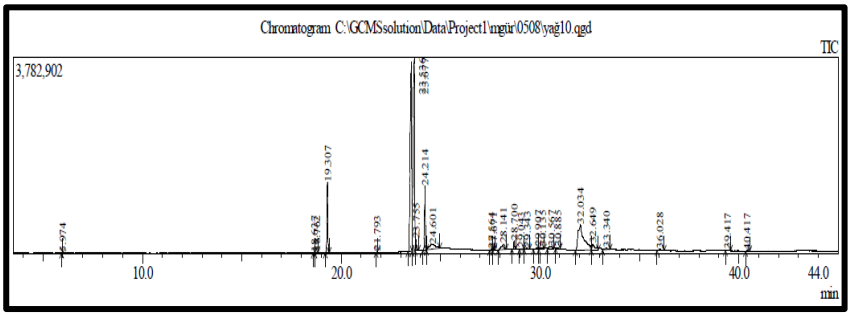

Figure 4: Sesamum indicum fatty acid scanning results.

Twenty compounds were identified in essential oil scanning of Sesamum indicum. GC-MS analy¬ses revealed that Sesamum indicum contained Oley alcohol, triluororacetate, Hexadecanoic acid, 1-(hydroxymethyl)-1,2-ethanediyl ester and Erucic acid *(*28.86%), (18.98%) and *(*18.87%), respectively as the major compounds as showen (Table 2) and (fig 2).

Table .(2). Sesamum indicum: Essential oil scanning.

Peak	*R,Time*	*Area*	*Area%*	*Name*
1	50.148	28214830	28.86	*Oley alcohol, triluororacetate*
2	50.811	18557536	18.98	*Hexadecanoic acid, 1-(hydroxymethyl)-1,2-ethanediyl ester*
3	51.276	18451518	18.87	*Erucic acid*
		97780679	100.00	

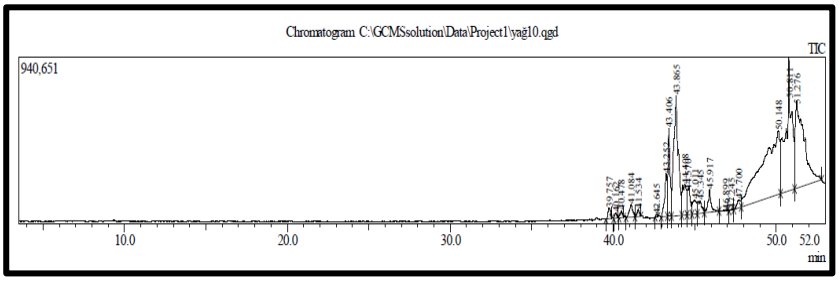

Figure 5: Sesamum indicum: Essential oil scanning.

Thirty-one compounds were identified in fatty acid scanning of Papaver samniferum. GC-MS analy¬ses revealed that P. samniferum (black) contained 9,12-Octadecadienoic acid (Z,Z)-, methyl ester (4.03%), 8,11,14-Eicosatrienoic acid, methyl ester (8.51%), 11-Eicosenoic acid, methyl ester (6.39%), (R)-(-)-14-Methyl-8-hexadecyn-1-ol (10.08%), 2-Octylcyclopropene-1-heptanol (3.95%), 9,12-Octadecadienoic acid (Z,Z)- (4.07%), Trichloroacetic acid, tridec-2-ynyl ester (5.39%), di-(9-octadecenoyl)-glycerol (8.62%: This compound has seen in two different retention times), 9,12-Octadecadien-1-ol (4.86%), Methyl 3-cis,9-cis,12-cis-octadecatrienoate (6.10%), Cyclohexanecarboxylic acid, heptadecyl ester (9.37), 13-Docosenoic acid, methyl ester (17.43%: This compound has seen in two different retention times) as the major compounds as showen (Table 3).

Table.(3). Papaver samniferum: Fatty Acid Scanning Results (GC-MS).

Peak	*R,Time*	*Area*	*Area%*	*Name*
1	19.302	920252	1.03	*Hexadecanoic acid, methyl ester (CAS)*
2	21.220	90676	0.10	*9-Hexadecanoic acid, methyl ester, (Z)- (CAS*
3	23.481	3587215	4.03	*9.12-Octadecadienoic acid.(Z.Z)-,methyle ester*
4	23.638	7563494	8.51	*8,11,14-Eacosatrienoic acid, methyl ester*
5	23.744	316292	0.36	*9.Octadecenoic acid, methyle ester(CAS)*
6	24.307	480329	0.54	*Methyl stearate*
7	28.062	478552	0.54	*Cis-11,14-Eacosatrienoic acid, methyl ester*
8	28.174	5686193	6.39	*11-Eacosatrienoic acid, methyl*
9	28.306	216290	0.24	*Cis-11-Eacosatrienoic acid, methyl*
10	28.709	391301	0.44	*Eacosatrienoic acid, methyl (CAS)*
11	30.851	8962649	10.08	*(R)-(-)-14-Methyl-8-hexadecya-1-ol*
12	30.955	13511831	3,95	*2-octylcylopropene-1-1heptanol*
13	30.998	1717441	1.93	*2H-Benzocycclohepten-2-one, decahydro-9a-methyl-, trans-*
14	31.047	3620710	4.07	*9.12-Octadecadienoic acid.(Z.Z)-*
15	31.125	1313765	1.48	*(R)-(-)-14-Methyl-8-hexadecya-1-ol*
16	31.206	4789074	5.39	*Trichloroacetic acid, tridec-2-ynyl ester*
17	31.330	2871111	3.23	*DI-(9-OCTADENOYL)-GLYCEROL*
18	31.725	3596810	4.04	*DI-(9-OCTADENOYL)-GLYCEROL*
19	31.705	4318286	4.86	*9.12-Octadecadienoic acid.(Z.Z)-*
20	31.940	542024	6.10	*Methyl 3-cis,9-cis,12-cis-octadecatrienoate*
21	32.025	8328545	9.37	*Cyclohexanecarboxylic acid, heptadecl ester*
22	32.753	14715603	16.55	*13-Docosenoic acid, metthyl ester*
23	32.902	779513	0.88	*13-Docosenoic acid, metthyl ester*
24	33.370	807855	0.91	*Methyle 20-methyl-heneicosanoate*
25	38.456	996536	1.12	*9-Octadecadienoic acid, 1,2,3-propanetriyl ester, (,E.E.E)-*
26	38.751	1275945	1.43	*9-Octadecadienoic acid, 1,2,3-propanetriyl ester, (,E.E.E)-*
27	39.412	1082607	1.22	*CIS-15-TETRACOSENSAEURE, METHYLESTER*
28	39.665	162216	0.18	*9,12,15-Octadecatanoic acid, 2,3-dihydroxypropyl ester, (E.E.E)-*
29	39.846	232082	0.26	*CIS-13,16-DOCOSADIENOIC ACID ME*
30	40.469	426138	0.48	*Tetracosanoic acid, methyl ester*
31	43.369	261945	0.29	*3-Tetradecanynoic acid*
		88921480	100.00	

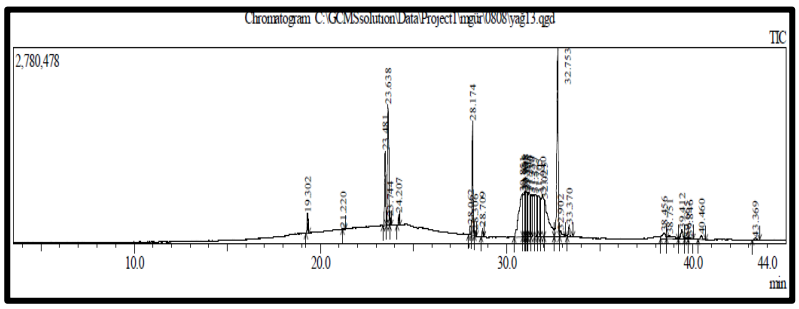

Figure 6: Papaver samniferum fatty acid scanning results.

Eighteen compounds were identified in essential oil of : Papaver samniferum. GC-MS analy¬ses revealed that : P. samniferum contained (33.72%) of Hexadecanoic acid, 1-(hydroxymethyl)-1,2-proparpnediyle ester,(29.32%) E.E.Z-1,3,12-Nonadecatriene-5,14-diol and (13.30%) 9-Octadecenoic acid, 1,2,3-propanetriyl ester, (E,E,E)- as major compound as shown (table 4) and (fig 6).

Table.(4). P. samniferum: essential oil Scanning Results (GC-MS).

Peak	*R,Time*	*Area*	*Area%*	*Name*
1	43,230	25659347	33.72	*Hexadecanoic acid, 1-(hydroxymethyl)-1,2-proparpnediyle ester*
2	49.665	22309808	29.32	*E.E.Z-1,3,12-Nonadecatriene-5,14-diol*
3	50.810	9643417	13.30	*Octadecenoic acid, 1,2,3-propanetriyl ester, (E,E,E)-*

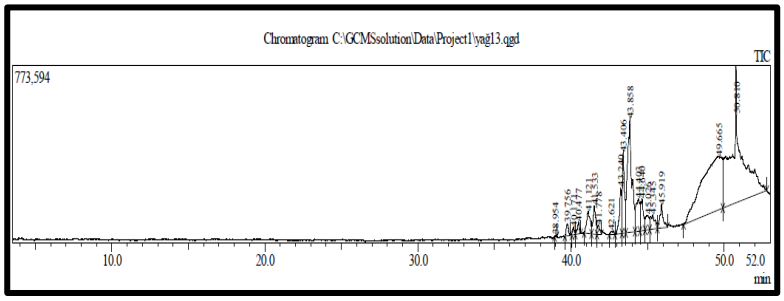

Figure 6: Papaver samniferum essential oil results.

Hexadecanoic acid, methyl ester compound was seen in cold-pressed oil of S. İndicum and P. samniferum plants as percentages of (18.98%), (33.72%), respectively. Octadecadienoic acid (Z,Z)-, methyl ester compound was determined in cold-pressed oil of S. İndicum and P. samniferum plants as percentages of 31.19, 44.80, respectively. 13-Docosenoic acid, metthyl ester compound has higest determined in cold-pressed oil of P. samniferum plants as percentages of 17.43. ,12-Octadecadienoic acid (Z,Z)-, methyl ester compound has higest determined in cold-pressed oil of S. İndicum plants as percentages of (31.17%) .

Youssef et al (2013) and Rathee et al (1984) where reported in S. İndicum was linoleic acid and oleic acid as major compounds (Youssef, M. K. E., et al, 2013; Rathee, et al, 1984) this is agreement in the present study.

Nergiz et al (1994) and Azcan et al (2004) reported in P. somniferum linolic acid , oleic acid and palmic acid respectively as major compound (Nergize, et al, 1994; Aazcan, et al, 2004) whereas in present study was 13-Docosenoic acid, methyl ester as major compound in black P. somniferum

The results for disk diffusion test of S. İndicum and P. somniferum are given in Table 5 and the results for standard antibiotic disks are given in Table 6 too. The MIC values observed S. İndicum and P. somniferum are given in Table 7.

According to the results P. somniferum seed oil was observed to be active all microorganism the average of inhibition zone ranging (7-8mm) as shown in table 5 whears the highest antimicrobial activity against *E.aerogens in 15µ/disc* concentratiion *about 9±1,0 and on Kleb.pneumonia about 9±1,0* the MIC values were observed to be 12.5 µg/mL. S. İndicum seed oil was observed to be no active t for all microorgnism.

Table .(5). Disk diffusion test results for 5 µL and 15 µL of cold pressoils obtained from seeds P. somniferum and S. İndicum (Inhibition zones in mm).

Microbial	***P. somniferum***		***S. İndicum***	
	5 µg/disc	***15µg/disc***	***5µg/disc***	***15µg/disc***
S. enteritis	7.5	8.5		-
C. albicanis		2	7.1	-
Staph. aureus		7.1	7.5	-
E. faecium		7.5	8.5	-
E. faecalis		2	8.5	-
S. typhimirium		7.5	8.5	-
E.aerogens		7.5	9	-
S. infantis		7.5	8.5	-
S. Kentucky		6.7	7.5	-
Pseud.floverscans		6.8	8.5	-
Kleb.pneumonia		7.5	9	-
B. subtilis		7.5	8.5	-
Staph.epidermis		6.7	8.5	-
Pseudomonas arginosa		7.5	8.5	-
E.coli		6.7	8.5	-

"-": No activity

Table .(6). The results for standard antibiotic disks (Inhibition zones in mm).

	CFZ	***CLI***	***CAM***	***CPR***	***AMC***	***SXT***	***CRO***	***GEN***	***AMP***	***CEF***	***CXM***	***VAN***
B. subtilis	44	34	37	36	56	42	38	30	41	36	44	20
C. albicans	-	-	-	-	-	-	-	-	-	-	-	-
E. aerogenes	14	-	26	30	9	24	21	23	-	-	16	-
E. faecalis	14	-	19	19	28	29	-	13	14	-	-	15
E. faecium	40	30	11	28	43	34	31	28	32	24	33	26
E. coli	18	-	22	-	16	12	-	20	6	6	6	6
K. pneumoniae	-	-	22	30	9	6	6	22	6	6	6	-
P. aeruginosa	-	-	9	28	-	-	-	15	-	-	-	-

P. fluorescence	10	8	22	19	26	26	-	12	14	-	-	16
S. enteritidis	23	-	28	36	28	31	27	24	16	-	16	-
S. infantis	22	-	28	24	26	24	26	24	14	-	17	-
S. kentucky	22	-	29	34	26	27	30	13	15	-	19	-
S. typhimurium	22	-	27	35	26	21	27	23	13	-	14	-
S. aureus	31	24	21	22	30	27	16	24	25	22	29	16
S. epidermidis	37	35	33	34	45	32	26	25	24	26	32	21

"-": No activity observed, CFZ: Cefazolin, CLI: Clindamycin, CAM: Chloramphenicol, CPR: Ciprofloxacin, AMC: Amoxicillin/Clavulanic acid, SXT: Sulfamethoxazole/Trimethoprim, CRO: Ceftriaxone, GEN: Gentamicin, AMP: Ampicillin, CEF: Cephalothin, CXM: Cefuroxime, VAN: Vancomycin

Table .(5). MIC values (µg/mL) for

Microorganisms	***P. somniferum***
S. enteritis	*12.5*
Candida albicanis	*12.5*
Staph. aureus	*12.5*
E. faecium	*12.5*
E. faecalis	*12.5*
S. typhimirium	*12.5*
E. aerogens	*12.5*
S. infantis	*25*
S. Kentucky	*12.5*
Pseudomonas floverscans	*12.5*
Klebsella pneumonia	*12.5*
B. subitis	*12.5*
Staph. epidermis	*12.5*
E.coli	*12.5*
Pseudomonas arginosa	*12.5*

Chaudhry et al (2008) that reported Papaver Somniferum seeds failed to inhibit any of the tested bacteria that seed pushed of Pakistan, then boiling 10g in 100ml distilled water and used disc diffusion method (Chaudhry et al 2008) while in this study Papaver somniferum has

mild affected against all microbes where was an average inhibition zone between 7-9mm. The highest result showed against E. aergenousa and klep. pneumonia where was 9.0±1.0.

Shittu et al (2007) who used the essential oil that extracted from sesame leaves has a very strong antimicrobial effect against Streptococcus pneumoniae at full concentration while strong and mild antimicrobial effect on Candida albicans (Shittu et al 2007). While in this study cold press oil from sesame has not antimicrobial effect.

Ogunsola, O. K., & Fasola, T. R. (2014) conduct studied he antibacterial activities of Sesamum indicum by use Leaf extracts had Streptococcus pneumoniae , Staphylococcus aureus and candida affect.

Conclusion

This study has revealed the Papaver Somniferum and Sesamum indicum are a rich source of fatty acid as scannig by Gas chromatography–mass spectrometry (GC-MS) analysis and this medicinal plants can use them as Antimicrobial, but this depend on the ways that have use, in this study had use oil that extract from seeds with 5µg/disc and 15µg/disc concentratiom may if increase rate of concentration it will giving more well affect or by use leaves or cruch seeds. In addation P. amygdalus oil it very useful for skin wheares can use for skin therapy

Acknowledgement

We would like to thank everyone help in performing this work, especially Hajer Mohamed elgheriani and Mohammed Ali Salem. We also thank staffs in kastamomu Univesity in forestry and biology department.

المستخلص: الهدف من هذه الدراسة هو تجربة لمقاومة نشاط البتكتيريا بالزيوت المستخرجه بطريقه الضغط الخام لبذور السمسم والخشخاش.

زيوت هذه النباتات تم اختبار حساسيته علي البكتيريا والفطريات بواسطة طريقة الانتشار القرصي والتركيز المثبط الأدنى ضد 15 نوع من الميكروبات، العُنقودية البَشْرَوية *Staphylococcus epidermidis* ومكورات العنقودية الذهبية *Staphylococcus aureus* ولسالمونيلا *Salmonella typhimurium* والسالمونيلات المعويه *Salmonella enteritidis* وسالمونيلا كنتاكي *Salmonella kentucky* و سالمونيلا الرضع *Salmonella infantis* وزائفة متألقة *Pseudomonas fluorescens* و الزائفة الزنجارية *Pseudomonas aeruginosa* والكليبسيلة الرئوية *Klebsiella pneumoniae* وإشريكية القولونية *Enterococcus faecium* ومكورة معوية برازية و معوية البراز *Enterococcus faecalis* وأمعائية مرياحة و عَصَوِيَّةٌ رَقِيقَة *Enterobacter aerogenes* وفطر المبيضات *Candida albican*.

النتائج قورنت بالمضادات الحيوية وهي سيفازولين *cefazolin*، كليندامايسين *clindamycin* ، كلورامفينيكول *chloramphenicol*، سيبروفلوكساسين *ciprofloxacin*، أموكسيسيلين / حمض كلافولانيك *amoxicillin/clavulanic acid* ، سلفاميثوكسازول / تريميثوبريم sulfamethoxazole/trimethoprim ، سيفترياكسون *ceftriaxone* ، جنتاميسين *gentamicin* ، أمبيسيلين *ampicillin* ، سيفالوثين، *cephalothin* ، سيفوروكسيم *cefuroxime* وفانكومايسين *vancomycin* .

كما تم تحليل المستخلصات كيميائيا باستخدام التحليل بالكروماتوغرافيا الغازية.

كنتيجه لذلك لوحظ ان زيت الخشاش فعال ضد جميع الكائنات الحية في هذه التجربة اما زيت السمسم لم يعطي أي تأثير ضد الميكروبات المستخدمة.

كلمات البحث: لتركيب الكيميائي ، زيت مضغوط على البارد، نشاط مضادات الميكروبات ، السمسم ، الخشخاش المنوم.

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