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Antibacterial and antifungal potentials of the various solvents extracts of *Quercus incana* fruits

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Abstract

Medications have been utilized from time immemorial all across the world for numerous ailments in various communities of the world to cure different disorders and thus its need and prominence is magnificently expanding. *Quercus incana* has been gone for the scientific observations to test its indicated conventional utilizations against different communicable diseases. The bacterial strains used in the study were *E. coil. Xanthomonus maltophilia, Klebsiella pneumonia, Staphylococcus aures, Clavibacter michiganmensis, Salmonella typhi* and antifungal strain used was *candida albicans*. Ciprofloxacin and Coltrimazol were used as antibacterial and antifungal assays respectively. Various aspects of *Quercus incana* were examined against six bactericidal strains. Ethanol and water fractions were observed more powerful among the plants samples. The entire investigations resulted that the plants species activity against the examined bacterial and parasitic strains. In nutshell the results revealed that *Quercus incana* fruits have board antibacterial and antifungal potentials. These samples of the plants which have been selected as sample for the investigations viz. ethanol and water fractions were found more dynamic. In addition to this being the major samples the ethanol and water parts of these plants can be liable to column chromatography for the separation of more effective antimicrobial medications.

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Introduction

Life and disease go collectively where there is life disease is bound to exist. Addition and sustainability of man and animal life has been revolving around plants through their uses as food fibre and shields, but also plants have been used to control and easiness disease, therefore the use of plants as medicine is an ancient and reliable practice (Shahid *et al.,* 2004).

For the treatment of illness, there has been a very strong dependency on medicinal plants. About seventy one percent patients were treating with herbal treatment in Jamica tropical research before reported to the medicinal services. In the past medicinal plant were also used as pesticides and thus the trend has been changed into modern medical practices of the country (Arshad & Rao, 2001). Apart from these, various components of the microbial defiance have significantly lessened the affectivity of antibiotics and microbial obstruction is the significant reason of the failure to cure bacterial and fungal infection. In addition to this, adverse medicinal response and hyper sensitivity reaction related with the utilization of different syntheses of antimicrobial potentials. Along these lines indicated that significant focus of the research is predominantly concentrated on the naturals compounds obtained from different plants (Ashfaq *et al.,* 2018).

The utilization of plants as a wellspring of medication for the treatments of numerous ailments is ancient. Plants have always been an important source of natural resource for a long time in keeping up human wellbeing and health, particularly in the most recent decades where more concentrated studies were given to natural therapies/treatments (Sufyan *et al.,* 2018). Traditional drugs are utilized all across the world with a considerable growing economic significance. *Quercus incana* belong to family Fagaceae that could be a little family comprising of eight genera and 900 species found largely in temperate regions. In Pakistan this family is drawn by two genera viz. *Castana* and *Quercus*. *Quercus* is drawn by six species in west Pakistan *Quercus robur* is the soil introduced species, whereas other are wild in distribution with in the northern temperate mountains of the country (Bahadur *et al.,* 2018).

Materials and method

The *Quercus incana* fruits were collected from district Lower Dir, Khyber Pakhtunkhwa, Pakistan. The research work was consucted in Botany Department at Islamia College, University, Peshawar, Khyber Pakhtunkhwa, Pakistan. The obtained fruits were kept for approximately a month and a half in shady place at room temperature when the organic products became dried out and were grinded with the help of pestle and mortar.

The organic products were crushed for the arrangement of extraction in ethanol, chloroform and refined water. The powder material of organic products was weighted through electrical balance and thereafter, 100 ml powder was taken from prepared extract which was dissolved in 1000 ml of distilled water (Bakht *et al.,* 2011).

Stock extraction

To prepare stock extraction and dilutions 3.35 gm extract was extracted and dissolved in 4ml distilled water to obtain solution with the help of vertex mixer (Daihan scientific, Germany). Thus the solutions were utilized for the preparation of dilution and stock extracts in vials bacterial and fungal strains. Antibacterial strains of the plants and fruits were evaluated on the method of *E. coli*, *salmonella typhi*, *Bacillus subtilus, Staphylococcus aures, calvi-bactor* and *Xanthominas mailtophilia*. Fungal and bacterial strains were minutely observed and recorded through an experimental and an authentic lab situated in the North West Hospital in Peshawar. Various biochemical tests were applied and all the elements/items were kept at 4^{o}C. In agar inclines in freeze dried condition until the point that can be used at later stage. The fungicidal action was resolved against *candida albicans*. For the Preparation and standardization of bacterial and parasitic strains two distinct media were utilized for bacterial culture and nourishment and these were arranged as per the instruction of manufacturers (Wajcik *et al.,* 2010).

Nutrient agar

Commercially prepared 2.8 gm nutrient agar (Oxide, UK) was obtained from market and its was dissolved in 100ml distilled water with help of thermal magnetic stirrer (Diahan Scientific, Germany) while using 25ml auto-clavicle bottle. Once it was dissolved then the medium temperature was raised to 121°C 15 minutes for sterilization. Thus Nutrient agar was prepared to maintain bacterial culture (Zul *et al.,* 2015).

Growth media of nutrient broth

Autoclavable conical flask was used for the preparation of the nutrient broth media (Oxid, Uk) and getting nutrient broth approximately3.25g quantity was dissolved in 100ml water. Hereafter, media saluted with the help of magnetic stirrer and for 15 minutes at 121°C of Ibs it was kept in autoclave (Goosens *et al.,* 2005).

Standard control

To evaluate its negative and positive controls 0.05% concentrated ciprofloxacin and distilled water were utilized. Thus, 0.05% ciprofloxacin solution was prepared in a quantity of 25ml antibiotic (ciprofloxacin) by the mean of thermo magnetic stirrer and it was kept in an autoclave at 121°C of Ibs for 15 minutes.

Antibacterial assays

Antibacterial activity of various samples of plants was evaluated though well diffusion method. Nutrient agar plates were immunized with the test living beings under laminar stream hood with aseptic conditions well having breadth of 5mm were made in the agar plate utilizing a sterilized cork borer. Samples of different concentrates of plants were readied having concentration of 10mg/ml sample of each plant having volume of 100ul was poured into the separate wells of petri dishes utilizing micropipette. In every petri plates there were four trenches at its sides. For a time of 24 hours all the petri dishes were kept at 37-degree centigrade temperature in BOD incubator. Once it was incubated the zone of inhibition of each sample was measured in millimetres (Imran *et al.,* 2014).

Determine of MFCs

Antifungal activity/reaction was done for the plants sample against candida albicans. Plants samples of different dilutions were set-up in DMSO. Fungal media i.e Mueller-Hinton agar media was made ready in sterilized water and autoclaved. Thereafter, the readymade media was poured into the labelled test tubes and one millilitre of plants sample was added to each of them. Once it was incubated fungal growth was evaluated in the tubes. The most extreme fungicidal extract/ concentration (MFCs) were examined as the highest concentration of the sample at which no contagious/fungal growth was examined in the test tube. All the techniques were carried out in triplication and the nystatin was utilized as position control (Melissia *et al.,* 2010).

Statistical analysis

Two way Anova followed by Bonferronis multiple comparison test was applied for the comparison of positive control with the test group P values less than or equal to 0.05 were considered statistically significant. The standard error of mean was calculated at 94% confidence intervals.

Results

Antibacterial assay

Different solvent extract samples from *Quercus incana* fruits were used in the present study such methanol, Ethanol, Chloroform and distilled water against, *Bacillus subtilis, Xanthomanas maltophilia, Staphylococcus aureus, Esherichia coli*, *Klebsiella pneumoniae*, *Solmanella typhi*, *Caulobacter* and *Candida albicans*.

The data showed different result according to the zone of inhibition millimetres and diameter. All extracts showed significant results against microbes. But the ethanol extract showed excellent results as compared to the ethanol, chloroform and aqueous. The highest zone of inhibition showed by ethanol which is 32 mm against *Esherichia Coli*, while

methanol extract showed highest 26 mm against *Xanthemanas maltophilia*. The antibacterial result of water fruit extract showed against of *E.coli* was an excellent as compare to antibiotic. The well no 1 showed 28mm zone of inhibition by concentration of 500 mg/ml which was more significant then antibiotic. The well no 2 showed 36 mm zone of inhibition by concentration of 1000 mg/ml. The distilled water used as negative control hasn't showed zone of inhibition and 0.05% ciprofloxacin used as a positive control showed 18 mm zone of inhibition against *E.coli*.

Table 1. Zone of inhibitions of the solvents fraction in millimetre from *Quercus incana* fruit against *Esherichia coli*.

Esherichia coli	Wells Potency	Ethanol	Water	Methanol	Chloroform
	500mg/ml	26	28	22	16.5
	1000mg/ml	32	36	28	23
	Positive	20	18	16	12
	Negative	-	-	-	-

The antibacterial activity result of methanol fruit extract showed against of *E.coli* is different. The well no 1 was showed 22 mm zone of inhibition by concentration of 500 mg/ml. The well no 2 showed 28 mm zone of inhibition by concentration of 1000 mg/ml. The distilled water used as negative control hasn't showed any zone of inhibition while Antibiotic showed 16 mm zone of inhibition against of *E.coli*.

The antibacterial activity result of Ethanol extract showed against of *E.coli*. The well no 1 was showed 26 mm zone of inhibition by concentration of 500 mg/ml. The well no 2 showed 32 mm zone of inhibition by concentration of 1000 mg/ml.

Table 2. Zone of inhibitions of the solvents fraction in millimetre from *Quercus incana* fruit against *Bacillus subtilus*.

Bacillus subtilus	Wells Potency	Ethanol	Water	Methanol	Chloroform
	500mg/ml	20	18	14	22
	1000mg/ml	26	24	20	28
	Positive	16	14	16	16
	Negative	-	-	-	-

The well no 3 hasn't showed any zone of inhibition while well no 4 Antibiotic showed 20mm zone of inhibition against *E.coli*. The Fruit extract of chloroform showed against of E.coli. The well no 1 was showed 16.5 mm zone of inhibition by concentration of 500 mg/ml. The well no 2 showed 23.5 mm zone of inhibition by concentration of 1000 mg/ml. The well no 3 hasn't showed any zone of inhibition while well no 4 Antibiotic showed 12.5 mm zone of inhibition against of *E.coli* (table 1).

The antibacterial result of water fruit extract showed against of *Bacillus subtilus* was an excellent as compare to antibiotic. The well no 1 showed 18mm zone of inhibition by concentration of 500 mg/ml which was more significant then antibiotic.

The well no 2 showed 24 mm zone of inhibition by concentration of 1000 mg/ml. The distilled water used as negative control haven't showed any zone of inhibition and 0.05% ciprofloxacin used as a positive control showed 18 mm zone of inhibition against *Bacillus subtilus*. The antibacterial activity result of methanol fruit extract showed against of *Bacillus subtilus* is different. The well no 1 was showed 14mm zone of inhibition by concentration of 500 mg/ml. The well no 2 showed 20 mm zone of inhibition by concentration of 1000 mg/ml.

Table 3. Zone of inhibitions of the solvents fraction in millimetre from *Quercus incana* fruit against *Klebsiella pneumonia*.

Klebsiella pneumoniae	Wells Potency	Ethanol	Water	Methanol	Chloroform
	500 mg/ml	24	26	26	18
	1000 mg/ml	28	32	30	24
	Positive	22	20	20	14
	Negative	-	-	-	-

The distilled water used as negative control hasn't showed any zone of inhibition while Antibiotic showed 16 mm zone of inhibition against of *Bacillus subtilus*. The antibacterial activity result of Ethanol extract showed against of *Bacillus subtilus*. The well no 1 was showed 22 mm zone of inhibition by concentration of 500 mg/ml. The well no 2 showed 26 mm zone of inhibition by concentration of 1000 mg/ml. The well no 3 hasn,t showed any zone of inhibition while well no 4 Antibiotic showed 20 mm zone of inhibition against *Bacillus subtilus*.

The Fruit extract of chloroform showed against of *Bacillus subtilus*. The well no 1 was showed 22 mm zone of inhibition by concentration of 500 mg/ml. The well no 2 showed 28 mm zone of inhibition by concentration of 1000 mg/ml. The well no 3 hasn't showed any zone of inhibition while well no 4 Antibiotic showed 12.5 mm zone of inhibition against of *Bacillus subtilus* (table 2).

The water fruit extract showed diggerent Zol against K .*pneumoniae*. The well no 1 showed 26 mm zone of inhibition by concentration of 500 mg/ml which was more significant then antibiotic.

The well no 2 showed 32 mm zone of inhibition by concentration of 1000 mg/ml.

Table 4. Zone of inhibitions of the solvents fraction in millimetre from *Quercus incana* fruit against *Staphylococcus aureus*.

Staphylococcus aureus	Wells Potency	Ethanol	Water	Methanol	Chloroform
	500 mg/ml	19	20	24	16
	1000 mg/ml	28	30	34	22
	Positive	20	18	20	14
	Negative	-	-	-	-

The distilled water used as negative control haven't showed any zone of inhibition and 0.05% ciprofloxacin used as a positive control showed 20 mm zone of inhibition against *K. pneumoniae* . The antibacterial activity result of methanol fruit extract showed against of *K. pneumoniae* is different. The well no 1 was showed 26 mm zone of inhibition by concentration of 500 mg/ml. The well no 2 showed 30mm zone of inhibition by concentration of 1000 mg/ml. The distilled water used as negative control hasn't showed any zone of inhibition while Antibiotic showed 20 mm zone of inhibition against of *K. pneumoniae*. The antibacterial activity result of Ethanol extract showed against of E.coli. The well no 1 was showed 24 mm zone of inhibition by concentration of 500 mg/ml. The well no 2 showed 28 mm zone of inhibition by concentration of 1000 mg/ml. The well no 3 hasn,t showed any zone of inhibition while well no 4 Antibiotic showed 22 mm zone of inhibition against *K. pneumoniae*.

The Fruit extract of chloroform showed against of *K. pneumoniae* .The well no 1 was showed 18mm zone of inhibition by concentration of 500mg/ml. The well no 2 showed 24 mm zone of inhibition by concentration of 1000 mg/ml. The well no 3 hasn't showed any zone of inhibition while well no 4 Antibiotic showed 14 mm zone of inhibition against of *K. pneumoniae* (table 3).

Table 5. Zone of inhibitions of the solvents fraction in millimetre from *Quercus incana* fruit against *Clvi bactor*.

Clvibactor.	Wells Potency	Ethanol	Water	Methanol	Chloroform
	500 mg/ml	23	24	24	18
	1000 mg/ml	28	34	31	26
	Positive	20	22	22	13
	Negative	-	-	-	-

The antibacterial result of water fruit extract showed against *S.aureus*. The well no 1 showed 20mm zone of inhibition by concentration of 500mg/ml which was more significant then antibiotic. The well no 2 showed 30 mm zone of inhibition by concentration of 1000 mg/ml. The distilled water used as negative control hasn't showed any zone of inhibition and 0.05% ciprofloxacin used as a positive control showed 20 mm zone of inhibition against *S. aureus*. The antibacterial activity result of methanol fruit extract showed against of *S. aureus* is different. The well no 1 was showed 24 mm zone of inhibition by concentration of 500 mg/ml. The well no 2 Showed 34 mm zone of inhibition by concentration of 1000 mg/ml. The distilled water used as negative control hasn't showed any zone of inhibition while Antibiotic showed 20 mm zone of inhibition against of *S. aureus*. The antibacterial activity result of Ethanol extract showed against of *S. aureus*. The well no 1 was showed 19 mm zone of inhibition by concentration of 500 mg/ml. The well no 2 showed 28 mm zone of inhibition by concentration of 1000 mg/ml.

Table 6. Zone of inhibitions of the solvents fraction in millimetre from *Quercus incana* fruit against *Xanthemanas maltophilia*.

Xanthemanas maltophilia	Wells Potency	Ethanol	Water	Methanol	Chloroform
	500 mg/ml	26	28	26	22
	1000 mg/ml	36	38	32	28
	Positive	25	26	25	20
	Negative	-	-	-	-

The well no 3 hasn,t showed any zone of inhibition while well no 4 Antibiotic showed 22 mm zone of inhibition against *S. aureus*. The Fruit extract of chloroform showed against of *S. aureus* .The well no 1 was showed 16 mm zone of inhibition by concentration of 500 mg/ml. The well no 2 showed 22 mm zone of inhibition by concentration of 1000 mg/ml. The well no 3 hasn't showed any zone of inhibition while well no 4 Antibiotic showed 14 mm zone of inhibition against of *S. Aureus* (table 4).

The water Fruit extract showed different zone of inhibition against *Claibactor*. The well no 1 showed 24 mm zone of inhibition by concentration of 500mg/ml which was more significant then antibiotic. The well no 2 showed 34 mm zone of inhibition by concentration of 1000mg/ml. The distilled water used as negative control haven't showed any zone of inhibition and 0.05% ciprofloxacin used as a positive control showed 22 mm zone of inhibition against *Clvibactor*. The antibacterial activity result of methanol fruit extract showed against of *Clvibactor* is different. The well no 1 was showed 24 mm zone of inhibition by concentration of 500 mg/ml. The well no 2 Showed 36 mm zone of inhibition by concentration of 1000 mg/ml. The distilled water used as negative control hasn't showed any zone of inhibition while Antibiotic showed 24 mm zone of inhibition against *Clvibactor* . The antibacterial activity result of Ethanol extract showed against of *Clvibactor*. The well no 1 was showed 23 mm zone of inhibition by concentration of

500 mg/ml. The well no 2 showed 28 mm zone of inhibition by concentration of 1000 mg/ml. The well no 3 hasn't showed any zone of inhibition while well no 4 Antibiotic showed 20 mm zone of inhibition against *Clavibactor* . The Fruit extract of chloroform showed against *Clavibactor* .The well no 1 was showed 18 mm zone of inhibition by concentration of 500 mg/ml. The well no 2 showed 26 mm zone of inhibition by concentration of 1000 mg/ml. The well no 3 hasn't showed any zone of inhibition while well no 4 Antibiotic showed 16 mm zone of inhibition against *Clavibactor* (table 5).

Table 7. Zone of inhibitions of the solvents fraction in millimetre from *Quercus incana* fruit against *Salmonella Typhi.*

Salmonella Typhi	Wells Potency	Ethanol	Water	Methanol	Chloroform
	500 mg/ml	27	30	29	24
	1000mg/ml	34	36	34	30
	Positive	26	28	26	22
	Negative	-	-	-	-

The water Fruit extract showed different zone of inhibition against *Xanthemanas maltophilia*. The well no 1 showed 28 mm zone of inhibition by concentration of 500 mg/ml which was more significant then antibiotic. The well no 2 showed 38mm zone of inhibition by concentration of 1000 mg/ml. The distilled water used as negative control hasn't showed any zone of inhibition and 0.05% ciprofloxacin used as a positive control showed 26mm zone of inhibition against *Xanthemanas maltophilia*. The antibacterial activity result of methanol fruit extract showed against *Xanthemanas maltophilia* is different. The well no 1 was showed 26 mm zone of inhibition by concentration of 500 mg/ml. The well no 2 Showed 32 mm zone of inhibition by concentration of 1000 mg/ml. The distilled water used as negative control hasn't showed any zone of inhibition while Antibiotic showed 25 mm zone of inhibition against *Xanthemanas maltophilia*. The antibacterial activity result of Ethanol extract showed against *Xanthemanas maltophilia*. The well no 1 was showed 26 mm zone of inhibition by concentration of 500 mg/ml. The well no 2 showed 36 mm zone of inhibition by concentration of 1000 mg/ml. The well no 3 hasn,t showed any zone of inhibition while well no 4 Antibiotic showed 26 mm ZOl against *Xanthemanas maltophilia*. The Fruit extract of chloroform showed against *Xanthemanas maltophilia*. The well no 1 was showed 22 mm zone of inhibition by concentration of 500 mg/ml. The well no 2 showed 28 mm zone of inhibition by concentration of 1000 mg/ml. The well no 3 hasn't showed any zone of inhibition while well no 4 Antibiotic showed 20 mm zone of inhibition against *Xanthemanas maltophilia* (table 6).

The water Fruit extract showed different zone of inhibition agaist *Salmonella typhi*. The well no 1 showed 30 mm zone of inhibition by concentration of 500 mg/ml which was more significant then antibiotic. The well no 2 showed 36mm zone of inhibition by concentration of 1000 mg/ml. The distilled water used as negative control haven't showed any zone of inhibition and 0.05% ciprofloxacin used as a positive control showed 28 mm zone of inhibition against *Salmonella typhi*.. The antibacterial activity result of methanol fruit extract showed against *Salmonella typhi* is different. The well no 1 was showed 29 mm zone of inhibition by concentration of 500 mg/ml. The well no 2 Showed 34 mm zone of inhibition by concentration of 1000 mg/ml. The distilled water used as negative control hasn't showed any zone of inhibition while Antibiotic showed 26mm zone of inhibition against *Salmonella typhi*. The antibacterial activity result of Ethanol extract showed against *Salmonella typhi*. The well no 1 was showed 27 mm zone of inhibition by concentration of 500 mg/ml. The well no 2 showed 34 mm zone of inhibition by concentration of 1000 mg/ml. The well no 3 hasn,t showed any zone of

inhibition while well no 4 Antibiotic showed 26 mm zone of inhibition against *Salmonella typhi*. The Fruit extract of chloroform showed against *Salmonella typhi*. The well no 1 was showed 24 mm zone of inhibition by concentration of 500 mg/ml. The well no 2 showed 30 mm zone of inhibition by concentration of 1000 mg/ml. The well no 3 hasn't showed any zone of inhibition while well no 4 Antibiotic showed 22 mm zone of inhibition against *Salmonella typhi* (table 7).

The water Fruit extract showed different zone of inhibition against *Candida albicans*. The well no 1 showed 20 mm zone of inhibition by concentration of 500 mg/ml which was more significant then antibiotic. The well no 2 showed 28mm zone of inhibition by concentration of 1000 mg/ml. The distilled water used as negative control haven't showed any zone of inhibition and 0.05% ciprofloxacin used as a positive control showed 18 mm zone of inhibition against *Candida albicans*. The antibacterial activity result of methanol fruit extract showed against *Candida albicans* is different. The well no 1 was showed 24 mm zone of inhibition by concentration of 500 mg/ml. The well no 2 Showed 30mm zone of inhibition by concentration of 1000 mg/ml. The distilled water used as negative control hasn't showed any zone of inhibition while antibiotic showed 26 mm zone of inhibition against *Candida albicans*. The antibacterial activity result of ethanol extract showed against *Candida albicans*.

The well no 1 was showed 27 mm zone of inhibition by concentration of 500 mg/ml. The well no 2 showed 34 mm zone of inhibition by concentration of 1000 mg/ml. The well no 3 hasn,t showed any zone of inhibition while well no 4 Antibiotic showed 25 mm zone of inhibition against *Candida albicans*. The Fruit extract of chloroform showed against *Candida albicans*. The well no 1 was showed 22 mm zone of inhibition by concentration of 500 mg/ml. The well no 2 showed 30 mm zone of inhibition by concentration of 1000 mg/ml. The well no 3 hasn't showed any zone of inhibition while well no 4 Antibiotic showed 18 mm zone of inhibition against *Candida albicans* (table 8).

Table 8. Zone of inhibitions of the solvents fraction in millimetre from *Quercus incana* fruit against *Candida albicans*.

Candida albicans	Wells Potency	Ethanol	Water	Methanol	Chloroform
	500 mg/ml	27	20	24	22
	1000 mg/ml	34	28	30	30
	Positive	25	18	26	18
	Negative	-	-	-	-

Discussion

Microbes are considered as the backbone of numerous ailments and microbial penetration into the body tissue and blood prompt different infection some of which are hard to treat and significantly lethal. The aetiology of different human being's ailments might be identified with microorganisms viz. bacteria virus, and protozoa. The bacterial diseases viz. upper respiratory tract contamination, tuberculosis, pneumonia bacillary dysentery are getting significant attention because of the growing morbidity because of these diseases. Similarly, most of the fungi have the ability to cause infection without getting entered into the blood stream. Such type of fungal infections involves disruption of dermal layer and is contagious. Moreover the fungi may cause a lot of system infection as well.

The previous investigations of eighty-one sample showed the antimicrobial activity against at least one of the tested organism methanol extract of aerial parts of *Seselilibanotis* showed antibacterial activity against different bacterial strains while in another study by methanol lead extracts any *Eucalyptus camaldulensis* presented antimicrobial activity (Morens *et al.,* 2004). Antimicrobial assay of crude

ethanolic chloroform and water extract showed that *Quercus incana* were effective against all the bacterial strain viz. *E. coli, K. pneumeriae*, confirmed that the species of *Quercus* extract had wide antibacterial activities against both gram positive and gram negative bacteria (Shah *et al*., 2015). As a general rule plant is considered active against both fungi and bacteria when the zone of inhibition is greater them 6 mm. ZOI more than or equal to 12 mm was considered the best i.e most active; from 9-11 mm to be better and from 7-8 to be good (Shah *et al.,* 2012).

Conclusion

The present research indicated that *Quercus incana* has significantly sufficient antibacterial potentials. Resultantly it can be decided that antimicrobial potential of multiple samples of the observed plants may be due to its multiple varieties of compounds which are present in this plant regarding the antibacterial activity of the chloroform extracted. Apart from this, the chloroform extract sample too indicated antifungal activity. The data revealed less active against tested microbes.

The overall examination revealed that the ethanol and methanol extracted sample showed comparatively better reaction. However the chloroform and aqueous fraction of *Quercus incana* of fruit extract showed minor reaction.

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Author's contribution

SU, WK & WA conducted the experiment and MSK & MAS carried out the statistical analysis N designed the experiment and MI structured and wrote the manuscript.

Conflict of interest

The authors declare that they have no competing interest.

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