

Aqueous Extracts Of Common Plants Against Different Skin Problems Malassezia Furfur, Fusarium Proliferatum, Dryness, Acne, Rashes, Skin Burning

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Abstract- The objective of this study is to determine the antimicrobial properties of medicinal plants like *Mentha selvestis*, *Osimum basillus*, *Rosa indica*, *Rosa sinensis*, *Punica granatum*. The aqueous extracts was obtained by distillation method by liebig,s condenser. It was applied on skin patients who had Acne, dryness, pimples with pus, *Malassezia furfur*, *fusarium proliferatum*. It was found that *Mentha piperita* was most effective for *Malassezia furfur*. For *fusarium proliferatum* it was found that basil showed best result as compared to DMSO. It was found that for *Malassezia furfur* DMSO showed zone of inhibition 16mm as compared to *mentha piperita* which had 25mm. In agar plate of *fusarium proliferatum* DMSO inhibited 0.6mm area as compared to *Osimum basilicum* which had 25mm.

Index Terms- mint, basil, skin problems, dandruff, nail fungus

Pepper *Mentha piperita* is a hybrid plant which is a cross between water *Mentha piperita* and spear *Mentha piperita*. It is native to Europe and the Middle East (Edris et al., 2003). *Mentha piperita*, a member of the (Lamiaceae, *Mentha piperita*) family, is a perennial plant with a height of 50 cm. The leaves have very short petioles. The plant is always sterile and has a strong pepper *Mentha piperita* scent (Herro 2010). *Mentha piperita* is widely used in food, cosmetics and medicine. It has been proven helpful relief of common cold. It may also decrease symptoms of irritating bowel syndrome. (punit p, 2004)

Basil is one of the oldest spices belonging to the *Ocimum* genus and to the Lamiaceae family. This genus has great variety in its

morphology and chemotypes (Lawrence, 1988) . *ocimum* species are used both in brazilian traditional medicine against bronchitis, coughs, and sore throat and in adding flavors in food. (Robert. F.V 2017)

The *Rosa indica* is a woody [perennial flowering plant](#) belongs to the family [Rosaceae](#). Most species are native to [Asia](#). Some species hybridize easily, and this has been used in the development of the large variety of [gardens of Rosa indicas](#). Other species have been used for stomach problems, and are being studying for controlling cancer growth. (Mabberley, 1997)

The plants *Hibiscus rosa-sinensis* (*H.rosa-sinensis*) belongs to the family Malvaceae. Traditionally the flowers can be used as anti- asthmatic agents in many countries (Zhao, 2010). There are many studies which reveal the presence of different compounds with antimicrobial properties in various parts of plant (Sorachai et al., 2011). Flowers of *Hibiscus rosa-sinensis tiliaceus* L. are widely used for birth control and for treating skin infections (Melecchi, 2006). Leaves and flowers of selected *Hibiscus rosa-sinensis* species are used in traditional medicine for centuries. Information on their antioxidant and antibacterial activities is less (Wong et al., 2010). Combination of plant extract with antibiotics help to minimize the Minimum Inhibitory Concentrations (MICs), helpful activity and this reduces the side effects, the economic cost and reduce sensory impact. These combinations may also control some bacteria that show constantly high resistance to antimicrobials, i.e.

improving the efficacy of antibiotics against resistant bacterial pathogens, modifying agents (Aiyegore et al., 2010)

Pomegranate (*Punica granatum* L.); a granular apple which is consumed worldwide. The fruit is a native shrub of western Asia and Mediterranean countries have a maximum content of health promoting chemicals. Pomegranate fruit extracts have shown many life preventing activities against many life threatening diseases such as cancer (Lansky EP et al., 2007), cardiovascular diseases, atherosclerosis (Al-jarallah A et al., 2013) and type II diabetes (Banihani S et al., 2015). Interestingly, the nutritional parameters mentioned above are not limited to the edible part of the fruit, the vital role are played by the non- edible fractions of fruit and tree i.e. leaves, barks, seeds, buds, flower and peel. Although, these parts are considered to be waste, they contain enormous amount of nutritional value and biological active compounds compared to the edible portion of the fruit (Akhtar S, ismail et al., 2015). Pomegranate peels are distinguished by an internal network of membranes encompassing almost 26–30% of total fruit weight and are characterized by considerable amounts of phenolic compounds, including flavonoids such as anthocyanins, catechins and other complex flavonoids and hydrolysable tannins (punicalagin, punicalin, pedunculagin, ellagic and gallic acid). These compounds are intense in pomegranate peel and juice, which depicts 92% of the antioxidant activity allied with the fruit (Afaq F, saleem M et al., 2008)

MATERIALS AND METHODS:

Preparation of extracts:

Mentha piperita and basil leaves were freshly collected from a garden of frontier college along Flowers of *Hibiscus rosa-sinensis* and *Rosa indica*. These leaves and flowers were separately placed in around bottom flask with air tight on flame. The round bottom flask had a side tube which was connected with liebig condenser. Liebig condenser is a glass tube which has two glass connectors present opposite to each other. One connector was connected with pipe which was supplying water to tube while the other connector was placed in basin to pass the water from tube to basin. The passage of water was meant to cool the tube and condense the vapours to aqueous form. As the flame was vaporizing the moisture inside the leaves and flowers the pure extract of leaves was condensing to aqueous form and pouring in the beaker placed under the end of condenser.

Table no. 1 quantity of plants taken and extract obtained.

PLANTS	BOTANICAL NAMES	PART USED	AMOUNT TAKEN IN GRAMS	EXTRACT YIELD
MENTHA PIPERITA	MENTHA PEPPERITA	LEAVES	242g	60ml
HIBISCUS ROSA-SINENSIS	H. ROSA SINENSIS	FLOWER	39.2g	40ml
BASIL	OCIMUM BASILUS	LEAVES	72.5g	63ml
ROSA INDICA	ROSA INDICA	PETALS	73.3g	54ml
PUNICA GRANATUM	PUNICA GRANATUM	PEEL	72g	40ml

Preparation of agar solution:

To prepare potato infusion, 200g of sliced unpeeled potatoes were boiled in 1 liter distilled water for 30 minutes and filtered through filter paper. It was then mixed with dextrose sugar, agar along potato water and boiled to dissolve while constant stirrer. It was then placed in Autoclave for 15 min at 121C. The final pH was determined 5.6 (sagar 2015).

Culturing *Malassezia furfur* and *Fusarium proliferatum*:

To culture *Malassezia furfur* and *fusarium proliferatum* a test tube was taken and prepared a solution of 1g of glucose, 0-5g of agar in 2ml of water. The spores of *Malassezia furfur* were taken from one's hair and *fusarium proliferatum* from a patient. The spores were mixed with test tube agar solution. The solution was placed in incubator for 24 hours to culture the fungus.

Preparation of agar plates:

Agar solution was poured in petri dishes and let it freeze for 24 hours. In petri dishes, by the help of loop streaking was done. In streaked dishes 6 hills were made by 6mm cork borer. Then by digital pipette 5 different aqueous 75µl extracts were dropped in 5 hills. DMSO was dropped in remaining hill. Following latter procedure, second petri dish for *Fusarium proliferatum* was made. The petri dishes were placed in incubator for 72 hours. After the completion of incubation period, zones of inhibition were measured in mm by means of scale.

RESULTS AND DISCUSSION:

Table below shows the results by application of extract on their skin.

Table no. 2 Results after application of extracts

PATIENTS	SKIN PROBLEM	Amount given	Time
Patient A	Acne	10ml	3 days
Patient B	Dryness	10ml	2 days
Patient C	Rashes	10ml	1 day
Patient D	pimples	10ml	1 day
Patient E	Skin irritation	10ml	Instantly

The amount of 10ml was given to each patient and advised them to use it properly. During 72 hours the effect was observed on their affected area. The mixture of extract worked instantly on skin irritations which gave soothing effect on skin. Patient A used it two times daily and the mixture showed very good results against the skin irritation and redness with removal of pus It was daily used by a patient as a skin primer. For dryness it was used regularly till 4-5 days and skin was transformed to smooth one. Patient D applied it on pus pimple and it removed pus from the pimple with reducing the redness and irritation.

Table no. 3 inhibition zones for *Malassezia furfur* :

EXTRACT	HIGH EFFECT	MODERATE EFFECT	LOW EFFECT	
<i>Mentha piperita</i>	25mm			
<i>Ocimum basilicum</i>	20mm			
<i>Rosa indica</i>		10mm		
<i>Hibiscus rosa-sinensis</i>		14mm		
<i>Punica granatum</i>			5mm	
DMSO		16mm		

The above table proves that for *Malassezia furfu*, *Mentha piperita* aqueous extract effected the most with inhibition zone 25mm, while *Ocimum basilicum* worked less than *Mentha piperita* with measurement of 20mm. On the other hand *Rosa indica* with 10mm, *Hibiscus rosa-sinensis* with 14mm and DMSO had moderate effect and did not show very positive results. The duration of incubation was 72 hours.

Table no 4. Inhibition zones for *Fusarium proliferatum*:

EXTRACT	HIGH EFFECT	MODERATE EFFECT	LOW EFFECT	
<i>Mentha piperita</i>			0mm	
<i>Ocimum basilicum</i>	25mm			
<i>Rosa indica</i>			0mm	
<i>Hibiscus rosa-sinensis</i>			0mm	
<i>Punica granatum</i>	20mm			
DMSO			0.6mm	

The above table is proof that *Fusarium proliferatum* was inhibited by *ocimum basilicum* with inhibition zone 25mm. for *Punica granatum* the inhibition zone was measured 20mm. Other extracts i.e *Rosa indica*, *Hibiscus rosa-sinensis* and *Mentha piperita* had nil effect against it and the zones were covered with fungus. The duration of incubation was 72 hours.

Image of Healed acne.



I. CONCLUSION

The study concluded that aqueous extracts of different common plants which had several antimicrobial properties showed very good against skin problems such as skin irritation, dryness, acne, pimples and fungal activities such as *Malassezia furfur* and onchomycosis. *Mentha piperita* and *ocimum basilicum*

showed very good results for skin problems. they were also effective against *Malassezia furfur*. *Punica granatum* which has well known anti-microbial properties worked well against onychomycosis. This study was done with in short period of time with lack of resources. The study shows that the mixture of aqueous extract of mentha piperita, ocimum basilicum, Hibiscus rosa-sinensis, *Rosa indica* and Punica granatum show very good effects for skin problems. this study should be extend and find out more possible anti-microbial activities against severall other problems.

Industrialists must use this study in their ;products like cosmetics, shampoos, soaps, face wash and lotions as an alternatives of chemicals in order to avoid the side effects of such chemicals which cause dangerous side effects.

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