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Research Article

IN VITRO ANTIBACTERIAL ACTIVITY OF FLOWER EXTRACTS OF MORINGA OLEIFERA

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A B S T R A C T

Moringa oleifera is a common plant known for various medicinal properties. The research work was conducted to investigate the in vivo antibacterial activity of aqueous, ethanolic and acetonic extract of *Moringa oleifera* flowers. In-vitro antibacterial activity was performed by well diffusion method in agar medium. Alcoholic extract of flowers has shown effective antibacterial activity in assay techniques. The results obtained in the present study indicate that the study indicate that the flowers of *Moringa oleifera* are a potential source of natural antibacterial activity.

INTRODUCTION

Moringa is rapid growing tree cultivated in tropical to subtropical areas through out the world. Moringa is used as food in India, Philippines. All parts of Moringa have been used in treatment of many disease so it is called as miracle vegetable (A. A. Adedapo et.al., 2009). Each and every part of *M. oleifera* is useful (Ramesh Kumar Saini, *et al*., 2016).

In Ayurveda various medicinal plants are used in treatment of diseases. Various folk medicines plays vital role in Ayurveda, Unani treatment. Plants contains many active secondary metabolites in the form of alkaloids, steroids, tannins, glycosides, phenols and flavonoids, which are present in specific parts such as leaves, flowers, barks etc. In present work, antibacterial activity of 70% ethanol and aqueous extract *M. oleifera* flower extract were studied by using agar well diffusion method.

MATERIAL AND METHOD

The flowers of plant were collected from local gardens from Sataradistrict of Maharashtra and authenticated by botanist from Botany Department of Y.C. Institute of Science, Satara. The flowers were washed and shed dried and powdered.The dried material was extracted with ethanol, acetone and water using Soxhlet apparatus. The extract was concentrated under reduced pressure below 4^0C.

Bacterial culture of bacteria *Escherichia coli, Bacillus subtilis, K. pneumonia* were obtained from Yashwantrao Chavan Institute of Science, Satara, India.

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Culture of bacteria were maintained on nutrient broth at 8^oC and were cultured on agar to study antibacterial activity.
Antibacterial Activity

The antibacterial assay of flowers extracts were carried out by Agar well diffusion method. It this method media (Nutrient Agar- Hi- media) poured into the petri plates and incubated with bacterial culture viz. E. coli , K. pneumonia. For this method a well was prepared in the plate with a cup borer of 1.2cm size. In this well l00µl of the extracts were pored directly into the well with the help of micropipette (Bhumika Dodiya and Bijal Amin (2015)

RESULT AND DISCUSSION

The present study was ion the determining antibacterial activity using agar well diffusion method by measuring the inhibition zone in mm against two bacterial strain *E.coli* and *K. Pneumonia* in Flower of *Moringa oleifera* with different solvent like water and ethanol. The result obtained were shown in Table No. 1 which determined antibacterial activity of *M. oleifera* flower extracts by using agar well diffusion method. In this method measurement of zone of inhibition were carried out. The result reveals that solvent extracts of flower of *Moringa oleifera* against the test organisms.

Table 1 *Moringa oleifera* flower extract had higher antibacterial activity against *E.coli* compared to *K. pneumonia*

Extract sample	Strain	Conc^n in micro gm /0.1 ml	Zone of inhibition
Ethanol	*E. coli*	50	18mm
		75	22mm
	K. pneumonia	50	15mm
		75	20mm

Water	*E. coli*	50	16mm
		75	19mm
	K. pneumonia	50	13mm
		75	15mm

Antibacterial activity of alcoholic extract

The antibacterial activity of alcoholic extract agar well diffusion method. *E. coli* showed maximum zone of inhibition (18mm) as compared to *K. pneumonia* at 50µg/0.1 conc. It also showed maximum zone of inhibition 22mm in *E. coli* as compared to 20mm in *K. pneumonia* at 75µg/0.1 conc.
Antibacterial activity of Aqueous extract

Aqueous flower extract of *M. oleifera* showed large zone of inhibition in 16mm and 13mm against *E.coli* and *K. pneumonia* at 50µg/0.1 conc. It also showed 19mm and 15mm zone of inhibition at 75µg/0.1 conc.

The antibacterial activity of *Moringa oleifera* flower extract showed more activity in alcoholic extract as compared to aqueous extract against *E.coli* and *K. pneumonia*. It may indicates certain polar constituents are responsible for this activity.

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