In vitro antimicrobial studies of the essential oil of Tagetes erecta

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Tagetes erecta, belonging to the order *Compositae,* is grown in Indian gardens and is commonly known as "Genda" in Hindi. Its leaves are good for piles, kidney troubles, and muscular pain; its juice is used for earache and opthalmia.[1] The present paper deals with the antimicrobial activity of the essential oil extracted from its leaves by steam distillation in yield of 0.01%.

For determination of antibacterial activity oxoid nutrient broth was used for making the inoculum and the media was prepared by adding 2% agar to the oxoid nutrient broth. For determination of antifungal activity saboraud's broth was used for making the inoculum and the media was prepared by adding 2% to the Saboraud's broth.

Table I Antibacterial activity of essential oil of Tagetes erecta.
Average zones of inhibition in mm.

Name of Bacteria	Concentration of oil 100%	10%	2%	1%	0.4%	0.2%
Escherichia coli	12	11	10	9	8	7
Klebsiella pneumoniae	10	9	8	7	-	-
Bacillus substalis	18	16	15	14	12	11
Bacillus anthraces	16	14	13	12	11	10
Salmonella pullorum	12	10	9	8	7	-
Salmonella richmond	*12*	*11*	*10*	9	*8*	*7*
Salmonella newport	13	12	10	9	8	-
Salmonella stanley	11	10	9	8	-	-
Salmonella typhimolium	12	11	10	9	8	7
Staphyllococcus aureus	12	11	10	9	8	7
Proteus vulgaris	14	13	12	11	10	9
Pseudomonas agalactiae	10	9	8	7	-	-

These results include the size of the paper disc = 6 mm.
- = indicates that the activity is nil.

Table II Antifungal activity of essential oil of Tagetes erecta.
Average zones of inhibition in mm.

Name of Fungi	Concentration of oil 100%	10%	2%	1%	0.4%	0.2%
Aspergillus niger	12	11	10	9	8	-
Aspergillus fumigatus	10	9	8	-	-	-
Aspergillus flavous	8	7	-	-	-	-
Rhizophus stolonifer	*11*	9	8	7	-	-
Fusarium Sp.	10	9	8	7	-	-
Penicillium digitatum	11	10	9	8	7	-
Candida albicans	12	10	9	8	7	-

These results include the size of the paper disc = 6 mm.
- = indicates that the activity is nil.

The paper disc diffusion plate method was used for determining antimicrobial activity.[2] Sterile discs (6 mm in diameter), prepared from discs of very pure and highly absorbent paper for the assay of panicillin and other antibacterial substances, were used.[3] Discs dipped in the essential oil were placed over the seeded medium and incubated for 36 hours in the case of bacteria and 72 hours in the case of fungi. The experiment was perfumed in duplicate and the average zones of inhibition have been recorded. The activity of the oil was also tested in different concentrations. The dilutions of the oil were prepared in ethylene glycol. The results are reported in Table I (bacteria) and Table II (fungi).

The results show that the oil is moderately active in inhibiting the growth of B. substalis and B. anthraces. It has shown slight activity against other organisms.

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