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NOTE

Antibacterial Activity of the Unsaponifiable Fraction of the Fixed Oils of *Trichosanthes* Seeds

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In the present note, antibacterial activity of the unsaponifiable fraction of the fixed oils of *Trichosanthes* seeds is studied.

In view of the fact that oils from *Trichosanthes* plants[1–8] have the reputation of having significant physiological properties, like reducing sugar levels in blood and useful during ischaemic condition, it was considered to study antibacterial activity of the nonsaponifiable part of the fixed oils of some *Trichosanthes* plants. Seeds of the following four plants were procured from Department of Botany:

(1) *Trichosanthes anguina*,
(2) *Trichosanthes bracteata*,
(3) *Trichosanthes cucumerina*, and
(4) *Trichosanthes dioica*.

The seeds were separately extracted with petroleum ether (60°–80°C) in soxhlet extractors and solvent removed by distillation. The fixed oils were dried over anhydrous sodium sulphate and thereafter saponified by refluxing with alcoholic KOH. The saponified part was separated by dissolving in water and the unsaponifiable matters were removed by shaking with solvent ether in a separating funnel. The non-saponifiable parts of all the four plants were collected separately and five successive solvent extracts (petroleum ether, benzene, chloroform, ethyl acetate and alcohol) of each were studied for their antibacterial activities against pathogenic and non-pathogenic bacteria by the technique of filter paper disc diffusion plate method.[9, 10]

For the preparation of different media, sterilized 'oxoid' nutrient agar and broth were used. 30 mL of sterilised agar media cooled to 45°C was poured into each sterile petri dish and 5 mL of 24 h old broth culture was added and mixed separately. The test organisms used were seven species of bacteria belonging to gram +ve and –ve groups.

Sterilized filter paper discs (6 mm), soaked in the test solutions were placed in the seeded petri-dishes containing emerson medium and consequently incubated at 36°C for over 30 h. After incubation, the zones of inhibition of growth were formed in case the organism was susceptible and the diameter of the zone of inhibition was measured.

The observation and results are tabulated in Table-1.

TABLE 1
ANTIBACTERIAL ACTIVITY OF DIFFERENT EXTRACTIVES OF UNSAPONIFIABLE MATTER OF *TRICHOSANTHES* SEEDS

S.No.	Organism	Diameter of growth of inhibition zone (in mm), including the diameter of the well (10 mm)											
		Unsaponifiable matter in different solvents											
		Petroleum ether		Benzene		Chloroform		Ethyl actate		Alcohol		Control 500 ppm	
		Trichosanthes anguina	*Trichosanthes bracteata*	*Trichosanthes anguina*	*Trichosanthes bracteata*	*Trichosanthes anguina*	*Trichosanthes bracteata*	*Trichosanthes anguina*	*Trichosanthes bracteata*	*Trichosanthes anguina*	*Trichosanthes bracteata*	*Trichosanthes anguina*	*Trichosanthes bracteata*
1.	*Bacillus mycoides*	15	—	13	—	10	11	15	15	14	15	21	22
2.	*Bacillus subtilis*	19	—	—	—	13	6	—	13	—	13	—	18
3.	*Bacillus anthracis*	10	14	9	12	15	9	19	18	15	15	30	30
4.	*Staphylococcus alus*	—	—	11	3	13	4	13	15	16	23	22	20
5.	*Salmonella paratyphi*	—	5	12	6	14	10	14	4	16	15	20	18
6.	*Vibrio cholerae*	10	—	8	—	11	4	10	22	10	19	25	25
7.	*Xanthomonas malvacearum*	15	2	10	2	8	3	15	—	10	15	20	18
S.No.	Organism	*Trichosanthes cucumerina*	*Trichosanthes dioica*	*Trichosanthes cucumerina*	*Trichosanthes dioica*	*Trichosanthes cucumerina*	*Trichosanthes dioica*	*Trichosanthes cucumerina*	*Trichosanthes dioica*	*Trichosanthes cucumerina*	*Trichosanthes dioica*	*Trichosanthes cucumerina*	*Trichosanthes dioica*
1.	*Bacillus mycoides*	5	15	5	16	15	4	18	30	13	15	24	30
2.	*Bacillus subtilis*	4	12	15	15	12	5	16	13	15	4	20	24
3.	*Bacillus anthracis*	14	20	4	15	20	6	29	24	24	16	30	30
4.	*Staphylococcus alus*	15	4	18	16	6	15	5	15	6	14	25	25
5.	*Salmonella paratyphi*	14	4	15	14	5	5	12	15	14	20	25	24
6.	*Vibrio cholerae*	4-	13	3	12	4	16	20	18	5	15	25	25
7.	*Xanthomonas malvacearum*	6	4	6	15	4	4	15	5	6	20	20	24

A perusal of the data reported in Table-1 clearly indicates that antibacterial activity of all the extracts entirely depends upon the nature of the unsaponifiable part and the various ingredients present in them along with their capacity to diffuse into the agar medium.

All the extracts were found to possess appreciable antibacterial activity again *Bacillus anthracis* and *Xanthomonas malvacearum*. 500 ppm solution of streptomycin was used as control.

The results conclude that there is enough substance to warrant further analysis of these nonsaponifiable fractions for their potential use as antibacterial agent.

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