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A Study of Trichosanthes Dioica (Roxb): Anti-Bactericidial Agent

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***Abstract* – Trichosanthes Dioica, Roxb, belongs to the natural order Cucurbitaceae and is a climber, with a perennial root-stock occurring in the plains of north India is commonly known as "parwal". The leaves of the plant are used as cardiotonic antipyretic, laxative, stomachic and as an anti-diabetic agent.**

In the view of earlier reports about the presence of bitter principle, amorphous saponin and essential oil, its leaf oil was subjected to antimicrobial activity which showed that the oil had strong bactericidal activity against various bacteria. The results show the maximum bactericidal activity against Staphylococcus albus and Bacillus subtilis and least against Bacillus pumilus.

***Keywords* – Trichosanthes Dioica, Roxb, Anti-Diabetic Agent.**

I. EXPERIMENTAL

The plant was supplied by United Chemical and Allied products Calcutta. 500 gm of air – dried powdered leaves were extracted with petroleum ether (60-80 °C) in a Soxhlet extractor for 80 hrs. Excess of hexane was added to the extract and the insoluble matters were removed by filtration. The filtrate extract, concentrated under reduced pressure and kept in a refrigerator over- night, gave 46% Yellowish- green deposit at the bottom of the flask (Table-1).

Table 1: Physico – chemical constants of the oil.

Constant	Value
Specific gravity at 33 °C	0.8648
Refractive index at 30 °C	1.3007
Acid Value	0.53
Saponification Value	185.2
Iodine value (wijis 30 min)	117.2
Unsaponifiable matter	1.2%

After Saponification (KOH & alcohol) , the mixed fatty acids were esterified with BF_3 - methanol (14%) and analyzed by GLC (various Aerograph 180 °C , 6ftx 1/8 in stainless steel column packed with 15% diethylene glycol succinate on chromosorb W 60-80 mesh). Fatty acid composition (% by wt) is shown in Table – 2.

Table- 2 Fatty acid composition of oil

Fatty Acid	Retention Time (tR) (min)	Composition (% by wt)
16:0	8.2	15.5
16:2	6.2	20.3
18:0	10.5	11.7
18:2	13.6	7.6
18:3	19.4	9.6

II. BACTERICIDAL ACTIVITY OF THE LEAF OIL

The solution of four different dilution (1:100 1:250 1:500 1:1000) of the oil in ethylene glycol were prepared and tested against various bacteria. Gri-seofulvin (100ppm) was used as control. Bactonutrient agar along with Sabraud's dextrose agar was employed as medium. Sterilized paper discs (10mm diam) of whatman No. 1 filter paper were thoroughly soaked in pure oil and in different dilutions and placed over the seeded agar plates. The bactericidal activity was measured as zones of inhibition around the discs after incubating them at 33 °Celsius and observation is recorded in Table -3.

Table -3 Bactericidal activity of the oil

Organism	Diameter of Zone Inhibition In Control**					
	Pure oil	1:100	1:250	1:500	1:1000	
Staphylococcus albus	**20**	19	18	17	08	17
Staphylococcus aureus	**18**	16	15	14	07	18
Bacillus subtilis	**20**	19	18	17	06	17
Bacillus anthracis	**15**	13	12	11	05	14
Vibrocholerae	**12**	10	09	08	06	11

** 1000 ppm griseofulvin.

In this view the results show that the oil possesses maximum bactericidal activity against Staphylococcus albus, Bacillus subtilis, Staphylococcus aureus bacillus anthracis and vibrocholerae and least against bacillus pumilus.

The above deliberations clearly transpire that there is enough scope of the utility of the oil as anti bacterial agent and may potentially be used for making pharmaceutical preparation for treating bactericidal diseases.

REFERENCES

[1] "Wealth of India " A dictionary of India Raw Material and Industrial Products , C.S.I.R. Pub. , New Delhi , Vol. X , p. 473(1976).
[2] Kritikar, K.K and Basu , B.D. , " Indian Medicinal plants" Lalit Mohan Basu Pub. , Allahabad , Vol. I , p. 581 (1918).
[3] North , B. and Roy , A.C. , patna University J. , Vol. I No. 2, p. 56-60 (1945).
[4] Metcalff, C. D. , Schmitz, A.A., Pelk, J.R. , Anal. Chem. 38 , p. 514 (1966).