PERFORMANCE - CUM - ACHIEVEMENT REPORT (1st Year Report)

Topic : Systematic Investigation of Portulacaoleracea

The use of natural remedies for the, treatment of various diseases has a long history. A large section of India's population still depend upon the traditional herbal folk medicines & has a deep faith in it.

The data of the selected plant commonly known as 'Gholachibhaji" which is locally available was collected from different people. In Goa, people use it in their diet because of its medicinal & nutrient value.

From the literature survey it is known that there are two species available i.e.Portulacaoleracea&Portulaca. The selected plant was classified as Portulacaoleracea.

Since it is available in large in the Monsoon season the collection of the plant was carried out from different locality as per the schedule. Further it was dried in shade.

The different solvents required for the preparation of the extract like methanol, Petroleum ether, chloroform were procured & laboratory setup for further investigation was done, according to our work plan component.

The extract of the plant in different solvents was prepared using Soxhelt apparatus. This extract will be used for further analysis.

TOPIC: SYSTEMATIC INVESTIGATION OF PORTULACA OLERACEA

METHODOLOGY:

A) Preparation of extract of Portulacaoleracea:

Leaves of Portulacaoleracea were collected & cleaned. These cleaned leaves were kept for shade drying. After drying dried leaves were grind into fine powder. The weighed quantity of the powder was then dissolved in methanol & was distilled using soxhelt apparatus.

The viscous extract remained in the flask was, then transferred in a conical flask & used for further analysis.

B) ANTIMICROBIAL EFFECT:

To examine the antimicrobial effect of Portulacaoleracea for Gram positive Bacteria Corynebacterium.

Requirements: Microorganisms, Nutrient agar, Wilkins agar, cork borer, Pasteur pipettes, petridishes, incubator, sterilizing machine (Autoclave) etc.

Procedure:

1) Slant of Corynebacterium was prepared according to the standard procedure & sterilized.
2) Test organism was then sub cultured on Nutrient agar slant.
3) Slant was then incubated for 24 hrs. at 37 c . Growth was observed after 24 hrs.
4) The following different media were prepared:

i) Wilkins agar (to confirm zones of inhibition.)

ii) Nutrient agar

2nd year Report of Minor Research Project

(Sanctioned by UGC, Pune)

Topic : Systematic Investigation of Portulacaoleracea.

Experiment - 1

To study an antimicrobial effect of the plant extract (Portulacaoleracea)

a) Using different Pathogens
b) Using different concentration of the extract

The following results were obtained:-
Sample :- Extract of P. oleracea

Part A)

	Name of the Organism	Zone of Inhibitation in mms.	Methanol
	Gram +ve Bacteria		
1)	*Staphylococcus*	19 mm	-
2)	*Streptococcus*	13 mm	-
3)	*Corynebacterium*	21 mm	-

	Name of the Organism	Zone of Inhibitation in mms.	Methanol
	Gram -ve Bacteria		
1)	*klebsiella*	38 mm	-
2)	*s. para B*	13 mm	-
3)	*proteus*	14 mm	-

4)	E-coli	-	-
5)	Aerobacter	10 mm	-

B) Using different concentration of the plant extract (P. oleracea)

Procedure:- The above procedure was repeated by using different concentration of the extract in different solvents. For eg. Extract 1:- P. oleracea in methanol.

The following concentration of the extract was prepared for eg. 100%, 75%, 50% and 25%.

The following results were obtained

Sr. No.	Name of the organism	Concentration of Extract in Methanol			
	Gram +ve Bacteria	**100%**	**75%**	**50%**	**25%**
1)	*Staphylococcus*	17	14	12	11
2)	*Streptococcus*	12	11	10	9
3)	*Corynebacterium*	18	16	14	12

Sr. No.	Name of the organism	Concentration of Extract in $CHCl_3$			
	Gram -ve Bacteria	**100%**	**75%**	**50%**	**25%**
1)	*klebsiella*	32	28	25	20
2)	*s. para B*	11	10	09	08
3)	*proteus*	12	11	10	09
4)	E-coli	-	-	-	-
5)	Aerobacter	10	09	08	07

Sr. No.	Name of the organism	Concentration of Extract in Petroleum Ether			
		100%	**75%**	**50%**	**25%**
1)	*Staphylococcus*				
2)	*Klebsiella*	-	-	-	-
3)	*E.coli*	-	-	-	-
4)	*Proteus*	-	-	-	-
5)	*Aerobacter*	-	-	-	-

(Note: This part of the experiment will be repeated)

Experiment 2 – Flame Photometry
The following results were obtained:-

Sample	Wt. in ppm for Na	K	Ca
P. oleracea	74.2	182.6	82.8

Experiment 3 – Estimation of Iron by Spectrophotometer (Elico Model 5L 159)

The following results were obtained:-

Time	Std(ml)	Absorbance	% T	λ
2.45	2	0.061	86.9	510 nm
2.50	4	0.103	78.7	510 nm
2.57	6	0.189	64.6	510 nm
3.03	8	0.246	56.6	510 nm
3.07	10	0.317	48.2	510 nm

Sample	Absorbance	%T	λ
P. oleracea	0.253	55.7	510 nm

Equation:- 302.93x + 4.5038 (x = absorbance of sample)
Sample P. oleracea: 302.93 x 0.253 + 4.5038
= 81.145 µg

The results were obtained:- Iron concentration in sample P. oleracea = 81.145 µg

Experiment 4 – Estimation of Mn, Cu, Zn, Mg & Fe in P. oleracea extract by Atomic Absorption Spectroscopy

The following results were obtained:-

Elements	Concentration (ppm)
Mn	16.081
Mg	35.26
Zn	1.384
Cu	0.251
Fe	3.660

Similarly, The TLC of the 3 extract was carried out followed by column chromatography. Chromatography technique helped in separation of different organic components present in the plant extract.

Column Chromatography of P. oleracea extract was carried out by using petroleum ether as a solvent of elution. Fractions alike were collected and the I.R. of the sample was taken. (Results are not disclosed and may be published in journals and will be sent to you in due time)

The anti microbial effect of the plant extract is also is in progress.

The further investigation of the plant extract in other solvents is in progress.

Very good results are obtained for the antimicrobial effect of the plant.

I was able to run this research project only because of your helping hand and co-operation. So I am very much thankful to you & your institution.

In future also I look for your kind assistant and co-operation to undertake this type of research work.

Once again I thank to you.

Yours faithfully

(Mrs. Anuradha B. Kanolkar)
Principal Investigator