Ancient Science of Life Vol. No XIX (3&4) January, February, March, April 2000 pages 179 - 182

Antitumour activity of root extract of Ludwigia Prostrata Roxb. Against Dalton's Ascitic Lymphoma

A.M.SHANMUGHAM[1],S.BALU[2], S.KAVIMANI[3]

1Department of Botany, Govt. Arts College, Karur-639 005, Tamilnadu.

2. Department of Botany, A.V.V.M. Sri pushpam college, (Atonomous) Poondi- 613 503, Thanjavur, Tamilnadu.

3. Department of Pharmacology, Periyar college of pharmaceutical sciences for Girls, Tricy-21, Tamil Nadu.

Received: 12.7.99 **Accepted: 19.12.99**

INTRODUCTION

Methanol extract of *Ludwigia Prostrata* root exhibited antitumour activity against Dalton's ascetic Lymphoma (DAL) in swiss albino mice. The enhancement of median survival time by the root extract was significant when compare with control group. White blood cell count was decreased in the treated one with respect to tumour bearing mice.

Ludwigia prostrata Roxb [1] (Neer Kirambu in Tamil) belonging to family onagraceae was not studied for its medicinal properties fully, sofar. *Basella alba Linn*. of Basellaceae is an ingredient of the drug sukhaprasavada ghrtam[2] some species of Ludwigia are used only as substitute for basella.[3] Present study deals with the antitumour activity of *L. prostrata* root.

MATERIALS AND METHODS

Roots of the plant were collected at mukkombu, Trichy Dt., Tamilnadu shade dried, powdered and finally extracted with methanol in a soxhlet. The extract was evaporated to dryness and dissolved in phosphate buffer (pH 7.4) and used for the present investigation and phytochemical screening.

Swiss albino mice having body weight between 20-24g were selected for the present investigation. The animals were fed with standard laboratory diet and water and libitum. Dalton's Ascitic Lymphoma (DAL) cell line was obtained from cancer Research Institute, Adayar, Chennai and was maintained by weekly transplantation of 10^6 cells/mouse, intraperitioneally.

EFFECTOFROOTEXTRACTONSURVIVAL TIME

Animals were inoculated (i.p) with 2 x 10^5 cells/ mouse on day 0, and treatment with root extract started 24 hr after inoculation at a dose of 50mg/kg/day i.p ROUP!), 100 mg/kg/day i.p (group II). The control (group III) was treated with same volume of 0.9% sodium chloride. All treatment were carried out for nine days. The group V animals were treated with standard drug 5-Fluorouracil (5U)) 20 mg/kg/day i.p for 9 days) and median survival times (MST) noted for each group. The animals surviving more tan 60 days were considered to be cured survival time of treated groups were compared with those of control group IV (Treated with 5 FU) using the following formula[4].

$$\text{Median survival time (MST)} = \frac{\text{Day of 1st death + Day of last death}}{2}$$

$$\text{Increase in life span (ILS)} = T/C\ \% = \frac{\text{MST of treated group}}{\text{MST of control group}} \times 100$$

Table 1 Effect of root extract on life span of tumour bearing mice.

Treatment	MST (in days)	Increase in life span T/C%
Root extract (50mg/kg i.p)	26	123.8
Root extract (100mg/kg i.p)	28	133
5FU (20 mg/kg i.p)	39	185
Saline	21	100

Number of animals used: 10 in each group
Days of drug treatment: 9

HAEMATILOGICAL STUDIES

To measure the influence of root extract on the hematological status of DAL bearing mice, comparison was made among five groups (n=5) of mice on the 14th d after inoculation. The groups are (1) tumour bearing mice (2) tumour bearing mice treated wit root extract (50 mg/kg i.p) for 9 days (3) tumor bearing mice treated with root extract 100 mg/kg/day i.p (4) tumour bearing mice treated wt 5 FU (5) normal mice. Blood was drawn from the tail vein in the conventional was and the red blood cell count, white blood cell count, haemoglobin, protein and packed cellular volume were determine [5,6] The average of 5 determination was computed.

RESULT

The effect of root extract in different concentrations on the survival of tumour bearing mice showed MST 26 days and 28 days respectively. MST for control group was 21 days and 39 days for the group treated with 5 Fu (20mg/kg/day i.p).

Haematological parameters of (Table II) tumour bearing mice on day 14 were found to be significantly altered from the normal group. Total WBC, protein and P.C.V were found to be increased. The haemoglobin content was also reduced. In the differential count of the WBC, the percentage of lymphocyte count decrease and the neutrophils increased.

When treated with root extract (dose 50 mg) and (dose 100mg) increased the RBC, haemoglobin and lymphocytes. They decreased WBC, protein and P.C.V The curing effect of 5 FU is more than the root extracts.

DISCUSSION

The curing effect of any anticancer drug is measured by the enhancement of the life span of the animal7 and the reduction in number of white blood cells[8] from the blood. The above result of the experiments, i.e prolongation of life span and reduction in WBC reveal the anticancer effect of the root extract of Ludwigia prostrate.

The possible mechanism of action if the root extract of L. prostrate ma be due to the presence of flavonoids which have been reported for ist anticarcinogenic & antimutagenic effect, [9,10]

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CORRIGENDA

WE FORGOT TO MENTION THE AUTHORS NAME IN THE ARTICLES 'STUDIES ON THE ADAPTOGENIC AND ANTIBACTERIAL PROPERTIES OF POLYSCIAS FRUTICOSA (l) HARMS "PAGE 231 -246) PUBLISHED TH (VOL NO. XVIII NO 3. & 4 JANUAR AND APRIL 1999. THE AUTHORS NAME IS AS HEAD OF TE DEPT. OF PHARMACOGNOSY & PHYTOCHEMISTRY, SRI, RAMAKRISHNA COLLEGE OF PHARMAC, COIMBATORE-641 044.

OMISSION IS GEGRETTED.

EDITOR

Table II Effect of Root Extract of L. Prostrata on haematological parameters.

	Total RBC Million/Cumm.	Hg (g%)	Total WBC Cumm . of blood	PCV (m)	Protein g%	Differential count		
						L	N	M
Normal	9.6 ±0.04	14.2± 0.04	8018 ±20.99	16.8± 0.05	8.7 ±0.08	68 ±0.17	30 ±0.14	2 ±0.06
Tumour control	5.83± 0.03	8.3 ±0.04	13220± 53.74	28.2 ±0.05	13.8± 0.04	22 ±0.16	75 ±0.17	3 ±0.10
5FU (20mg)	8.24 ±0.08	13.8± 0.04	9093 ±30.19	17.6 ±0.07	9.2 ±0.04	42 ±0.37	56 ±0.26	2 ±0.06
Root Extract (50mg)	7.86 ±0.10	11.8 ± 0.89	10482 ±57.23	21.6 ±0.10	11.8± 0.13	37± 0.36	61 ±0.63	2 ±0.06
Root Extract (100mg)	8.15 ±0.08	10.7± 0.03	9876 ±37.97	19.8 ±0.07	10.9± 0.04	44± 0.50	53 ±0.37	3 ±0.10

Number of animals : 5 in each group
Days of drug treatment:9
Values were expressed as mean ± SE

pages 179 - 182