7. ANNEXURES
Antioxidant activity of *Ipomoea leari*
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**Abstract**
The antioxidant properties of four successive extracts of *Ipomoea leari* Paxton and the successive chloroform extract fraction, ILCF-28, were tested using standard *in vitro* and *in vivo* models. The amount of the total phenolic and flavonoid content was also determined. The successive chloroform extract, ILC and its fraction ILCF-28 exhibited strong scavenging effect on 2,2-diphenyl-2-picryl hydrazyl (DPPH), Nitric oxide, 2,2'-azino-bis (3-ethylbenzo-thiazoline-6-sulphonic acid) diammonium salt (ABTS) radical cation, Reducing power, p-NDA and hydrogen peroxide methods. The free radical scavenging effect of ILC and ILCF-28 was comparable with that of reference antioxidants. The ILCF-28 having the highest content of phenolic compounds and strong free radical scavenging effect when administered orally to male albino rats at 100, 200 and 400mg/kg body weight for 7 days, prior to carbon tetrachloride (CCl₄) treatment, caused a significant increase in the levels of catalase (CAT) and superoxide dismutase (SOD) and a significant decrease in the levels of lipid peroxidation (LPO) in serum, liver and kidney, in a dose dependent manner, when compared to CCl₄ treated control. These results clearly indicate the strong antioxidant property of the plant *Ipomoea leari*. The study provides a proof for the ethnomedical claims and reported biological activities. The plant has, therefore, very good therapeutic potential.

**Key words:** *Ipomoea leari; free radicals; in vivo; Ccl4*
In vitro antioxidant activity of Solanum jasminoides Paxt extracts

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Short Communication to journal of natural remedies (In press)

Abstract

Three successive whole plant extracts (petroleum ether, methanol and water) of Solanum jasminoides Paxt were screened for their in vitro antioxidant activity using 2,2-diphenyl-2-picryl hydrazyl (DPPH), 2,2-azino-bis(3ethylbenzo-thiazoline-6-sulphonic acid) diammonium salt (ABTS), hydrogen peroxide, nitric oxide, hydroxyl radical, inhibition of lipid peroxidation, deoxyribose and p-NDA methods. The successive methanol extract exhibited significance antioxidant activity and hence merits further investigation.

Key words: Solanum jasminoides (P.), Antioxidant activity
Anticancer potential of *Solanum jasminoides*

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Abstract

**Objective:** To investigate the anticancer potential of the extracts and the alkaloidal and non alkaloidal fractions of *Solanum jasminoides* Paxt using *in vitro* and *in vivo* models.

**Method:** The petroleum ether, methanol and water extracts of the whole plant was prepared by successive soxhlet method. The methanol extract was treated with solvents to separate alkaloidal and non alkaloidal fractions. All the samples were subjected to *in vitro* anticancer studies using Vero, BRL-3, HEp-2, HeLa, MDCK and A-549 cell lines. Based on the *in vitro* results, the alkaloidal fraction was selected and subjected to *in vivo* anticancer activity against DLA and EAC induced ascities in mice.

**Results:** The results reveal that the extracts and the fractions show moderate to good *in vitro* anticancer activity and the alkaloidal fraction shows superior activity. In the *in vivo* study the alkaloidal fraction shows a dose dependent effect on changes in the body weight, mortality and clinical symptoms induced by cancer cells.

**Conclusion:** The results of the present study indicate that the alkaloidal fraction of the plant possesses good, both *in vitro* and *in vivo*, anticancer potential.

**Key words:**
*Solanum jasminoides*, Solanaceae, Cytotoxicity, Anticancer
Studies on the anticancer activity of the root of *Caesalpinia digyna*

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(Paper communicated to Natural product research)

Abstract:

*Caesalpinia digyna* Rottler has a wide spectrum of medicinal properties. It has been used in folk and traditional medicine for cancer, pthisis and scrofula. The successive extracts and the isolated compound, bergenin, were tested for their *in vitro* cytotoxicity against normal and cancerous cell lines. The successive methanolic extract and the isolated compound, bergenin, were further tested for their *in vivo* anticancer activity using DLA and EAC induced ascitic and DLA induced solid tumor in mice. Bergenin shows selective cytotoxicity towards A-549 (human non small cell lung carcinoma) cell lines. The successive methanolic extract shows good activity in short term and long term toxicity studies. In the *in vivo* anticancer studies, treatment with methanolic extract shows a significant and dose dependent reduction in the percentage increase in the body weight and a significant reversal of haematological parameters towards near normal values, when compared to DLA and EAC control.

**Key words:** *Caesalpinia digyna*, Bergenin, anticancer activity
ANNEXURE-2

PBT 125

Anticancer activity of Caesalpinia digyna root

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Abstract

To investigate the anticancer potential of Caesalpinia digyna Rottler root using standard in vitro and in vivo, MLA, LAC models. The plant material was successively extracted with Pet ether, (60-80)° (CDP), methanol (CDM) and water (CDW) in a soxhlet extractor for 18-20 hours. The cytotoxicity of extract was tested against Vero (normal African green monkey), BRL-3 human liver), HepG2 (human HepG2 epithelial carcinoma), HeLa (Epithelial human cervix cancer), MDCK (dog, kidney) and A-549 (human small cell lung carcinoma) cell lines using the thiazolyl blue test (MTT) and Sulforhodamine-B (SRB) assay.

All the three successive extract of Caesalpinia digyna root shows specific toxicity towards cancer cell cultures. Petroleum ether extract, shows a CTC50 value of 126.69 and 129.46 µg/ml, respectively, towards cancer cell lines, HeLa and HepG2. It shows lesser toxicity (with a CTC50 value 430.11 µg/ml) towards normal vero cell culture. The methanolic extract (CDM) shows specific toxicity with CTC50 of 174.68, 128.76 and 122.1 µg/ml towards HeLa, HepG2 and A-549, respectively and its toxicity against normal vero was 448.7 µg/ml, and the water extract (CDW) shows moderate specificity against cancer cell lines. Through HPTLC studies, standardization of active extract was carried out by using a marker.

The results clearly indicate the strong anticancer properties of Caesalpinia digyna root. The study provides a proof for the ethnomedical claims and reported biological activities. The plant has, therefore, very good therapeutic potential. Further studies of the active extracts are necessary like characterization of the active compounds and biological evaluation.
CERTIFICATE

This to certify that Mr. Omji Porwal, Research Scholar, Department of Phytopharmacy and Phytomedicine, J.S.S. College of Pharmacy, Udagamandalam, given a plant for identification. The same has been identified by me as *Ipomoea batatas* (L.) Lam. and *Ipomoea leari* Paxt. belong to the family Convolvulaceae.

(Signed)

(Dr. S. RAJAN)

Dr. S. RAJAN,
Field Botanist,
Survey of Medicinal Plants & Collection Unit,
Central Council for Research in Homoeopathy,
Department of AYUSH,
Ministry of Health & Family Welfare, Govt. of India.

Place: Emerald.
Date: 2.10.2009
ANNEXURE -4

J.S.S. College of Pharmacy, Ootacamund, Tamil Nadu, India.
Committee for the Purpose of control and Supervision of Experiments on
Animals (CPCSEA)/
Institutional Animal Ethics committee (IAEC).

CERTIFICATE

Title of the Project: "Development of new Anticancer Leads / Drugs from Ipomoea
Species"
Proposal Number: JSSCP/IAEC/PR/04/PHYTOPHARM/02/2010-11.

Date received after modification (if any):

Date received after second modification: 10.08.10

Approval date: 13.11.10

Animals:
Wistar rats/ Albino mice
Rabbits / Guinea pigs

No. of animals sanctioned: 98
Male/Female

Expiry date (Termination of the Project): ONE MONTH.

Name of IAEC/CPCSEA chairperson:

Prof. K. Elango

Date: 13.11.10

Signature of Chairperson

Institutional Animal Ethics Committee
JSS College of Pharmacy
Rockland, Ooty 643 001