Abstract

Title: *In-vitro* anticancer activity of Flower of *Cassia alata* L. on Human urinary bladder carcinoma (T24) cell line.

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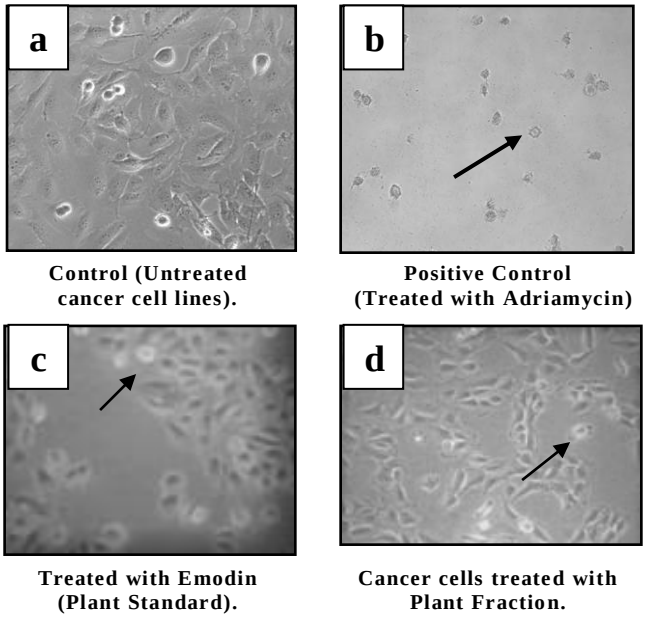
Keywords: *Cassia alata* L., *In-vitro* anticancer activity, SRB assay, T24 bladder cell lines, Soxlet extraction method.

I. Abstract

The present study investigated *Cassia alata* L. Flower plant fraction on human urinary bladder carcinoma (T24) cell lines *via in-vitro* **SRB assay** for anticancer property. Fresh flowers of *Cassia alata* plant were collected from suburban area of Maharashtra, India for preparation of plant extract. Soxlet extraction method was used for plant extract preparation. Bioactive fraction was separated *via* Column Chromatography method. Separated fraction was used against T24 carcinoma cell line and Vero cell line (mammalian non cancerous cells) in four different concentration *viz.* 10, 20, 40, 80µgml. Effect was compared with Adrimycin (standard anticancer drug and used as appositive control) and Emodin, a Plant standard. Separated plant fraction demonstrated a dose-dependent reduction in the overall activity of T-24 carcinoma cell line. *C. alata* flower separated fraction exhibited cytotoxic effect on T24 carcinoma cell line with IC_{50} value 45.3µg/ml and effective GI_{50} value 18.8µg/ml. Graph obtained from SRB cytotoxicity assay showed that separated plant fraction reduced the growth in T24 cell lines by lower than 50% with initial 10µg/ml concentration. In Vero cell line separated plant fraction and plant standard not showed any cytotoxic effect even when applied in higher concentration *i.e.* 80µg/ml. In contrast, standard anticancer drug showed pronounced cytotoxic effect even in lower concentration *i.e.* 10µg/ml. Phase contrast micrographs of T24 cell line treated with separated fraction showed significant decrease in viable cell numbers at 24 hrs of treatment. In conclusion, present study showed that separated fraction from *C. alata* flower has potential anticancer activity and showed significant result against Urinary bladder carcinoma cell line.

II. Image:

Micrographs of Urinary bladder carcinoma cell line.



Control (Untreated cancer cell lines).

Positive Control (Treated with Adriamycin)

Treated with Emodin (Plant Standard).

Cancer cells treated with Plant Fraction.

III. Reference:

1 Tcheghebe O. T., Tala R.S. V., Tatong F.N. and Tchuente K.G. (2017). Ethnobotanical uses, phytochemical and pharmacological profiles and toxicity of *Cassia alata* L.: An overview. *Medicine and Medical Sciences*. Vol. 4. Issue 2. pp. 016-024. ISSN: 2354-323X.

2 Pieme C. A., Penlap V. N., Ngogang J., Kuete V., Catros V. and Moulinoux J. P. (2009). *In-vitro* effects of extract of *Senna alata* (Ceasalpiniaceae) on the polyamines produced by Leukaemia cells (L1210). *Phcog Mag*; Vol. 5. Issue: 17. pp.8-13.

3 Vichai and Kirtikara (2006). Sulforhodamine B colorimetric assay for cytotoxicity screening (Protocol). *Nature Protocols*. 1112. Vol. **1** No.**3**. Doi:10.1038/nprot.2006.179.

IV. Biography:

Meenakshi Barua has completed her Graduation in Environmental Science from Delhi University (2007) and Mastered in Biotechnology from KIIT University, Bhubaneshwar (2010). She had been in Environmental and Industrial Biotechnology Division at The Energy and Resources Institute (TERI), Lodhi Road, New Delhi from period 12th Jan 2010 – 12th Jul 2010 for dissertation. She qualified GATE, (Biotechnology) in 2011. Further she had enrolled her in Ph.D (Biotechnology) at Birla College of Arts, Science and Commerce, University of Mumbai. Recently, she has submitted her synopsis and Thesis is under process for

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Category: **Oral presentation**
Passport Number: **Under process.**