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In-vitro anticancer activity of separated fraction from *Cassia alata* L. on human urinary bladder carcinoma (T24) cell line and Vero cell line *(non-transformed-normal cell line)*

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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 (C. alata)* plant were collected from suburban area of Maharashtra, India for preparation of plant extract. Soxhlet 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, 80 µg ml. Effect was compared with Adriamycin (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 T24 carcinoma cell line. *C. alata* flower separated fraction exhibited cytotoxic effect on T24 carcinoma cell line with IC50 value 45.3 µg/ml and effective GI50 value 18.8 µg/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 10 µg/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. 80 µg/ml. In contrast, standard anticancer drug showed pronounced cytotoxic effect even in lower concentration i.e. 10 µg/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.