

5th International Conference and Exhibition on

Pharmaceutics & Novel Drug Delivery Systems

March 16-18, 2015 Crowne Plaza, Dubai, UAE

Formulation of anti-cancerous novel drug from *Tephrosia purpurea*

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The drug discovery from medicinal plants (natural source) involves a polygonal attitude combining botanical, phytochemical, biological, and molecular techniques. The drugs from *Tephrosia purpurea* to provide new and important leads against various pharmacological targets against cancer and other diseases. The TLC and HPLC were used to separate the different phytocompounds (i.e. flavonoids, phenols, steroids and saponin) from *Tephrosia purpurea* and the different concentration (i.e. 0.05, 0.10, 0.15, 0.20 µg) of separated phytocompounds treated against Diethyl nitrosamine (DENA) and alcohol induced hepatocellular carcinoma in Swiss albino mice. The maximum reduction of liver cancer marker and antioxidant marker were found formulated drug from *Tephrosia purpurea* as well as histopathology studies were exhibited maximum improvement against hepatocellular carcinoma. The formulated drug of *T. Purpurea* may be used as pharmacotherapeutics with other phytomedicines for overcoming of liver complications and disorders, further studies are needed for establishment of bioactive compounds of extracts and their mechanism to control liver cancer as well as liver disorders.

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Smart liposomes: Multifaceted approach to target ovarian cancer

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Recent study was aimed to evolve dual approach using synergistically active combination of paclitaxel-topotecan (Pac-Top; 20:1, w/w) using surface engineered and integrally modified liposomes. Various liposomes (size ~200 nm) viz. Liposomes (Lip), PEGylated liposomes (PL) and FR-targeted PEGylated liposomes (FPL) were developed using thin film casting technique. *In vitro* drug release study reflected initial burst release followed by sustained profile at physiological conditions (37±0.5°C, pH 7.4) whilst abrupt dispersal (i.e. more than 90%) within 5 min at simulated tumor conditions (41±1°C, pH 4). These liposomes were studied for shape and physical interaction (and integrity), *in vitro* drug release kinetics modelling, haemolytic toxicity studies, ex vivo pharmacodynamics (OVCAR-3 cell lines), fluorescence microscopy, and pharmacokinetics in ovarian tumor-bearing mice. Potentiated anticancer activity of FPL could be attributed to multifaceted features viz. thermosensitivity, long circulatory nature and targetability.

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