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## TITLE

### Noscapine Nanotherapeutics: An Update

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Since, the investigation of noscapine as an anticancer agent, we have provided sufficient evidences about the utility of this tubulin binding agent in various types of solid tumors like prostate, breast, lung, and brain cancer. Moreover, our group also reported several new analogues of noscapine which are 5 to 40-fold more potent than the parent compound. However, physicochemical and pharmacokinetic limitations of noscapine such as short biological half life, limited solubility, low oral bioavailability, high therapeutic dose and rapid elimination from tumor tissues hamper the development of commercial dosage form. Therefore, we have used nanoscale based drug delivery systems to augment the solubility, bioavailability and plasma half life of noscapine to scale up the technology. We have reported the molecular cycloencapsulation chemistry by using  $\beta$ -cyclodextrin to augment the solubility and bioavailability of drug. Cyclodextrin micelles of noscapine enhance the water solubility up to 10.3-fold and oral bioavailability up to 1.87-fold without affecting the half life of drug. Further, we reported the stealth gelatin based nanocarriers to improve the plasma half-life and intracellular concentration of noscapine in breast cancer cells. Our approach enhanced the plasma half-life of drug up to 10.4-fold and also improved the cellular uptake in breast cancer cells. Thus, we presented the viable nanotherapeutics of noscapine by using applications of nanotechnology in Cancer drug delivery science.

#### Biography

Prof. Ramesh Chandra is a creator, performer, builder of Institutions of Higher Learning, distinguished scientist and an outstanding researcher in the field of Chemical/ Biomedical Sciences. He is the Founder Director of the Dr. B. R. Ambedkar Center for Biomedical Research at the University of Delhi and has been the Vice-Chancellor of the Bundelkhand University, Jhansi (1999-2005) as well as the President of the Indian Chemical Society (2004-06) and Member, Planning Commission, Government of U.P., India.