

IN VIVO ASSESSMENT OF NANOSTRUCTURED LIPID CARRIER FOR ORAL DELIVERY OF ZERUMBONE IN LEUKEMIC MICE MODEL

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Cancer nanotherapeutics are progressing rapidly with innovative drug delivery systems to replace conventional delivery systems. Although, antitumor activity of zerumbone (ZER) has been reported, there has been no available information of ZER-loaded nanostructured lipid carrier (NLC) affects murine leukemia cells *in vivo*. In a previous study, ZER was incorporated into NLC by high pressure homogenization (HPH) technique. Physicochemical characterization included particle size, polydispersity index, zeta potential, pH, entrapment efficiency, loading capacity, stability study, and *in vitro* drug release, as well as physicochemical stability after being autoclaved and stored at 4°C, 25°C and 40°C for 1 month, were examined. In this study, *in vivo* effects of ZER-NLC on murine leukemia WEHI-3B cells were investigated. The outcomes of histopathology, TEM and TUNEL assays of BALB/c leukemia mice revealed that the number of leukemia cells were significantly ($P < 0.05$) decreased in spleen tissue after four weeks of oral administration of ZER-NLC. In conclusion, NLC is suggested as a promising carrier for ZER oral delivery.