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## Evaluation of nano-particle delivery system for 5 fluorouracil and curcumin on squamous cell carcinoma cell line

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**Purpose:** The purpose of this study is to assess the effect of 5-fluorouracil nanoparticles, curcumin nanoparticles and combination of both nanoparticles on the expression of the apoptotic marker (caspase 3) in squamous cell carcinoma cell line.

**Materials & Methods:** Human laryngeal squamous cell carcinoma cell line (Hep-2) was used in this study. 5-fluorouracil nanoparticles and curcumin nano-particles were prepared and applied in different concentrations for 24 and 48 hours on the used cell line. The yellow tetrazolium salt (MTT) assay was used for evaluation of cytotoxicity of prepared nanoparticles. Real time polymerase chain reaction (RT-PCR) was used for the assessment of caspase-3 expression in the treated cell line.

**Results:** MTT assay revealed that 5-fluorouracil nanoparticles, curcumin nano-particles and combination of both nanoparticles showed concentration dependant cytotoxicity on Hep-2 cell line. The RT-PCR assessment of caspase-3 expression revealed that there was a concentration dependent increase in caspase-3 expression in Hep-2 cell line treated with different concentrations of 5-fluorouracil nanoparticles, curcumin nanoparticles and combination of both nanoparticles.

**Conclusion:** Curcumin nano-particles could be more active in inducing apoptosis in short term assays than long term assays due to differential cellular uptake. 5-fluorouracil nanoparticles induced apoptosis could be better detected by RT-PCR rather than by MTT.

### Biography

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