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Grape seed extract nanosuspension: A green chemotherapy against colon cancer cells**K Krishna Kumar**

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Colorectal cancer is the third leading cause of cancer death in both men and women. Medicinal plants are mainly used for traditional Indian medicine and act as dietary agents for the treatment of various diseases including cancer. The poor water soluble drugs/herbal drugs have always been a challenging problem faced by pharmaceutical scientists to make pharmaceutical formulations. The objective of the study was to develop grape seed nanosuspension (GSNS) and investigate its *in vitro* anti-cancer activity against colon cancer cell line (HCT- 116). Grape seed nanosuspension was prepared by nano-precipitation method. Characterization of GSNS was performed using Zetal potential analysis and particle size termination by SEM analysis. GSNS was subjected to solubility study as well as stability study. Further, GSNS was subjected to *in vitro* anti-cancer activity against colon cancer cell line. The study results indicated that the prepared GSNS by nano-precipitation include several advantages, such as suitable for poor water soluble drugs/herbal drugs and suitable for large scale production. Particle size of GSNS showed range from ~ 140 to 201 nm. Zeta potential value of formulated nanosuspension was obtained as 3.42 mv. Solubility study indicated that formulated GSNS enhanced the solubility of the grape seed extract. Stability study showed GSNS was stable in room temperature and cold temperature. GSNS exhibited significant anticancer activity against HCT- 116 cell line at dose dependent manner. The study concluded that nano-precipitation method could be suitable to improve the solubility of grape seed extract and GSNS exhibited effective anti-cancer activity against colon cancer cell line.

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