

Editorial Announcement

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Editorial

Objectives: To evaluate the effect of different Nano filled resin coatings on the staining susceptibility of glass ionomer restoratives after immersion in three food simulating solutions (FSS). 5-Fluorouracil (5-FU) is a common chemotherapeutic drug for treatment of oral cancer. However, its toxicity to normal tissues has limited its role as an effective cancer therapy. This research aimed to investigate the effect of combining 5-FU with honokiol (HNK) - a small natural organic molecule- on enhancing the anticancer activity of 5-FU without increasing its toxicity. Honokiol (HNK) was formulated in nano-capsules (HNK-NC) for better bioavailability, efficient penetration and sustained release. HNK-NC was used in combination with 5-FU for treatment of tongue carcinoma induced chemically by 4-nitroquinoline 1 oxide (4-NQO) in albino rats. Rats were divided into seven groups including control, 4-NQO, 5-FU, HNK, HNKNP, 5-FU with HNK, and 5-FU with HNK-NC. HNK-NC were successfully prepared using nanoprecipitation technique and transmission electron microscopy (TEM) was employed to evaluate the shape of the prepared capsules. The mean particle size was 93.93 ± 1.22 nm, with zeta potential of ± 30.1 mV, and encapsulation efficiency of $99.2 \pm 0.3\%$. Assessment of serum levels of liver enzymes and creatinine was done to evaluate the safety of the used drugs. Serial sections of the tongues from all animals was examined microscopically and real-time PCR quantification of P53 gene expression was also assessed. The results showed that treatment with both 5-FU + HNK-NC had significantly retarded tumor growth, with a marked reduction in the systemic toxicity as compared to treatment with either drug individually. Data analysis revealed statistically significant differences ($P < 0.05$) in the expression levels of P53 between the combined treatment and control groups.