

## The Characterization of Nano-HA-CS vehicles (N-HCVs) for herbal compounds delivery

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### Abstract

In this study, Nano-HA-CS vehicles (N-HCVs) were prepared for drug delivery purpose by polyelectrolyte reaction of cationic chitosan (CS) and anionic sodium tripolyphosphate (TPP)/hyaluronic acid (HA) to encapsulate cancer therapeutic agents, aloe-emodin(AE). AE is a naturally occurring anthraquinone derivative can be found in the leaves and root of medical herbs such as aloe vera and rheum palmatum. AE can be used for different purposes such as treatment of callus, diarrhea, theregulation of immune function, antibacterial, anti-inflammatory, antiradiation, or regulation of gastrointestinal motility, promotion of appetite, and is able to inhibit cell growth of several tumor cells, including human lung carcinoma, hepatoma and leukemia cell lines. Another component of our drug carrier hyaluronic acid (HA), is natural, non-toxic, biodegradable polysaccharide that is well known by its efficiency to binding to CD44 receptors cells, such as breast, ovarian, colon, which over-express HA-binding receptors, CD44. Different concentration of TPP, HA, and AE were tested in this study. The encapsulation efficiency was characterized by ultra violet-visible-near infrared spectrophotometer (UV-VIS-NIR spectrophotometer). The zeta potential and size of N-HCVs were characterized by Zetasizer. The morphology observed by scanning electron microscopy (SEM). The functional groups were characterized by Fourier transform infrared (FTIR). Enhancement of herbal compounds anti-cancer efficiency was estimated by MTT assay.

**Keywords:** Hyaluronic acid , Chitosan , Aloe-emodin (AE)

### References:

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