Preparation of *Camellia oleifera* oil loaded chitosan nanoparticles and their release characteristic

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Abstract: *Camellia oleifera* oil, a rich source of bioactive compounds was encapsulated in chitosan nanoparticles by a two-step process, i.e. formation of oil in water emulsion and then ionic gelation using sodium tripolyphosphate (STPP) as a crosslink agent. In this study, *Camellia oleifera* oil was studied for its tyrosinase inhibition and antioxidant activity using UV-vis spectrophotometry. Since *Camellia oleifera* oil is a volatile compound, the encapsulation of *Camellia oleifera* oil in chitosan nanoparticles can prevent its loss into the environment. The chitosan nanoparticles containing different weight ratios of chitosan and oil (1:0.25, 1:0.5, 1:0.75, and 1:1) were characterized for their morphology using Field Emission Scanning Electron Microscope (FESEM). SEM images showed the spherical shape with aggregation of the nanoparticles. Size and polydispersity index of these nanoparticles were ranging between 500-1000 nm and 0.41-0.67, respectively. Moreover, these nanoparticles were studied for their encapsulation efficiency (EE), loading capacity (LC), and release behaviours using UV-visible spectrophotometry.

Keywords: *Camellia oleifera* oil; Chitosan; Nanoparticles; Controlled release