

## **Influence of Natural Gum on Curcumin Supersaturation in Gastrointestinal Fluids**

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**Abstract :** Supersaturation of drugs in the gastrointestinal tract is one approach to increase the absorption of poorly water-soluble drugs. The stabilization of a supersaturated state was achieved by adding precipitation inhibitors that may act through a variety of mechanisms. In this study, the effect of the natural gums, acacia, gelatin, pectin and tragacanth on curcumin supersaturation in simulated gastric fluid (SGF) (pH 1.2), fasted state simulated gastric fluid (FaSSGF) (pH 1.6), and simulated intestinal fluid (SIF) (pH 6.8) was investigated. The results indicated that all natural gums significantly increased the curcumin insolubility (about 1.2-6-fold) when compared to the absence of gum, and assisted in maintaining the supersaturated drug solution. Among the tested gums, pectin at 3% w/w was the best precipitation inhibitor with a significant increase in the degree of supersaturation about 3-fold in SGF, 2.4-fold in FaSSGF and 2-fold in SIF.

**Keywords :** curcumin, solubility, supersaturation, precipitation inhibitor

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