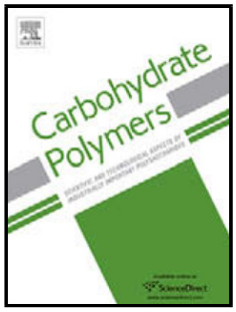

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Effect of carboxymethylation on rheological and drug release characteristics of locust bean gum matrix tablets

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ABSTRACT

This study was undertaken to investigate correlation between the carboxymethylation-induced rheological changes and drug release characteristics of locust bean gum (LBG) matrix tablets. LBG was derivatized to carboxymethyl LBG (CMLBG) and characterized by ^{13}C NMR, FTIR and elemental analyses. Rheological studies revealed that LBG, in contact with water, produced a strong elastic gel which swelled less due to lower penetration of water resulting in slower drug release. On the other hand, CMLBG formed a viscous polymer solution through which higher influx of water resulted in rapid swelling of the matrix and faster drug release. Although the release from a particular matrix was dependent on drugs' solubilities, CMLBG matrix tablet produced faster release of all the drugs than LBG matrix tablets. In conclusion, rheological study appeared to be an useful tool to predict release of drugs from polysaccharide matrix tablets.

1. Introduction

Plants have served as a vast reservoir of natural polymers. Plant derived polysaccharides which constitute a major fraction of carbohydrate mass (Zohuriaan-Mehr & Pourjavadi,