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

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

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16 **ABSTRACT**

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

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30 **1. Introduction**

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

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