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Carboxymethyl Sago Starch Based Hydrogel for Drug Delivery Application

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Abstract. Chemically modified sago starch into carboxymethyl sago starch (CMSS) was done by using carboxymethylation reaction. The reaction times are varied to determine the optimum degree of substitution (DS) and reaction efficiency (RE). CMSS prepared via carboxymethylation for 3 hours show the highest DS and RE. The CMSS hydrogel was prepared using citric acid as cross-linker. The effects of the preparation condition of CMSS hydrogel such as the percentage of citric acid (w/w), cross-linking periods and cross-linking temperature on the gel fraction were investigated. The swelling study was carried out in distilled water, acidic, neutral and alkaline medium. The release behaviour of methylene blue (MB) as the drug model demonstrates that CMSS hydrogel has potential to be use in drug delivery applications.

Keywords: Carboxymethyl sago starch, Citric acid, Hydrogel, Drug delivery, Controlled release