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Physicochemical characterization of gum from tamarind seed: Potential for pharmaceutical application

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ARTICLE INFO

Article history:

Available online 25 November 2015

Keywords:

Tamarind seed gum

Dry binder

Tablets

Diclofenac sodium

Tamarind (*Tamarindus indica* Linn.) is a topical plant that is generally found and planted in Thailand. Application of tamarind seed gum can increase the value of tamarind and minimize the industrial waste [1]. Tamarind seed gum powder offers high viscosity solution. Therefore, researchers are interested in developing tamarind seed gum as binder in formulation of diclofenac sodium tablet, prepared by dry granulation method. Physicochemical characterization result related that the carboxymethylation process could add carboxymethyl group in the chemical structure of crude gum [2]. The success of chemical modification was confirmed by FTIR result as presented in Fig. 1A. As illustrated in Fig. 1B, the power X-ray diffractogram expressed the gum in the form of crude, and modification was in amorphous form. Melting point, solubility properties and viscosity of the polymer solution increased after the chemical structure modification. However, the disintegration time of the tablet made of the modified gum was

too long. Consequently, appropriated amount of gum powder (40–70 mg/tablet) was optimized. The result found that hardness of the tablet did not depend on gum amount [3]. Increasing portion of the gum in the formulation retarded disintegration time and drug dissolution. The proper amount of the modified gum in the formulation was 60 mg (7.61% w/w). Hardness of the tablet was 61 N with 1.99% of tablet friability. Disintegration time was over than 15 minutes and drug release reached 76% in 20 minutes.

Acknowledgments

The authors acknowledge the financial support received from Faculty of Pharmaceutical Sciences, Burapha University. The

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Peer review under responsibility of Shenyang Pharmaceutical University.

<http://dx.doi.org/10.1016/j.ajps.2015.11.051>

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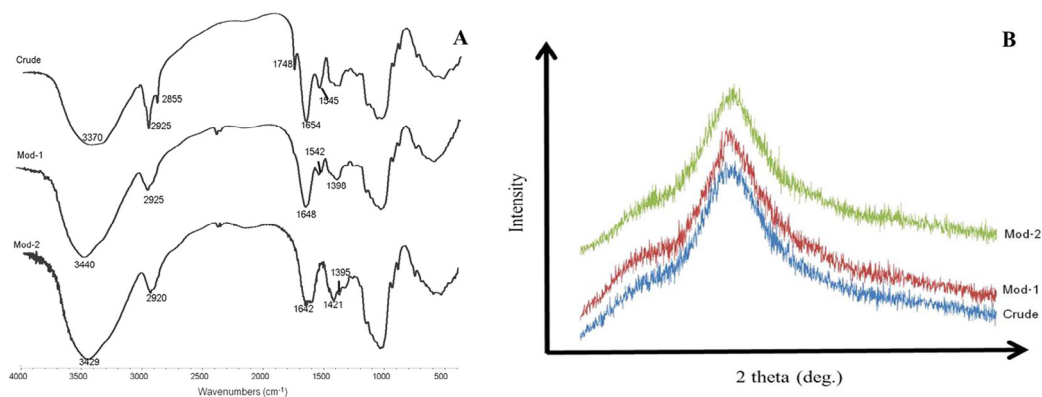


Fig. 1 – FTIR (A) and powder X-ray diffractogram (B) of tamarind gum in crude and modification forms.

assistance for laboratory work by Kanoknat Nakhonchai, Benjawan Ninwalaikul and Suebpong Eampakun is greatly appreciated.

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