In vitro cytotoxicity of *Jatropha curcas* in epithelial and fibroblast cells

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(Received 15 June 2012; Revised 24 June-22 September 2012; Accepted 30 September 2012)

ABSTRACT

The latex of *Jatropha curcas* is herbal medicine that is traditionally used as dental pain relief. To abolish the pain, the latex was dripped to the dental cavity, which may be exposed and may cause toxic effect to oral mucosa to happen. The aim of this study is to detect cytotoxicity of extracted latex of *J. curcas* to epithelial and fibroblast cells. The cells (1x10^4) were cultured in 96 well plates and allowed to attach for 5 days before treatment with serial concentration of *J. curcas* for 24 h period. The cytotoxicity assay of epithelial and fibroblast cells was performed using MTT assay to determine inhibition concentration 50 (IC_{50}). In both cells toxicity were detected dose-dependent, and IC_{50} value for epithelial and fibroblast cells were 4339µg/ml and 3876µg/ml respectively. Morphologically both of treatment cells were smaller than control cells. Thus *J. curcas* was toxic to epithelial and fibroblast cells.

Keywords: *Jatropha curcas*; Cytotoxicity; Epithelial and fibroblast cells.

INTRODUCTION

Dental pain is a common illness suffered by the society. To overcome the dental pain people in rural area often use herbal medicine instead of visiting the dentist. The latex of *Jatropha curcas* is herbal medicine that is traditionally used as dental pain relief (Handayani, 2003). To abolish the pain, traditionally the latex dripped to the dental cavity, which may be exposed and may cause toxic effect to oral mucosa to happen. Scientific data regarding analgesic effect of latex *J. curcas* on the dental pain have been widely studied (Siregar, 2000; Matulada, 2005; Irmaleny, 2010). Phytochemical content and simple standardized herbal medicine are recognized (Siregar, 2000; Irmaleny, 2010). The local safety based on the effect of latex *J. curcas* on the gingival fibroblast cells and periapical tissue has been studied (Siregar, 2000). However, *J. curcas* in latex preparation is categorized as empirical based herbal medicine. To develop latex *J. curcas* to be scientific based herbal medicine, herbal medicine must be prepared as extract. The study of standard parameter of extract *Jatropha curcas* (specific and non specific) was determined. The systemic safety based on the acute and sub-chronic toxicity test of extracted *J. curcas* were reported; it was safe for short term usage but be careful in long term usage (Irmaleny, 2010). Analgesic effect of extracted *J. curcas* as well as substance P (SP) and cyclooxygenase 2 (COX2) have...