

Insulinotropic activity of standardized methanolic extracts of *Ficus deltoidea* from seven varieties

ABSTRACT

Ficus deltoidea is a traditional medicinal plant that has been proven to show antidiabetic effects. This study focus is to assess the insulin secretion activity of *Ficus deltoidea* standardized methanolic extracts from seven independent varieties and mechanisms that underlie the insulin secretion action of the extracts. The cytotoxicity of *Ficus deltoidea* extracts was tested using viability assay. The insulin secretion assay was carried out by treating clonal BRIN BD11 cell line with standardized methanolic *Ficus deltoidea* extracts or glybenclamide. The clonal BRIN BD11 cell was also treated with insulin agonist and antagonist to elucidate the insulin secretion mechanism. Only the viability percentage for *Ficus deltoidea* var. *kunstleri* and *intermedia* was identified to be toxic at 500 and 1000 µg/ml ($P < 0.001$). The insulin secretion for *Ficus deltoidea* var. *deltoidea*, *angustifolia*, and *motleyana* was dose-dependent; further evaluation suggested that *Ficus deltoidea* var. *trengganuensis* was involved in K^{ATP} -independent pathway. This study suggests that standardized methanolic extracts of *Ficus deltoidea* varieties have an insulinotropic effect on clonal BRIN BD11 cell line and can be utilized as a modern candidate of antidiabetic agents targeting the escalation for insulin secretion from pancreatic beta cells.

Keyword: *Ficus deltoidea*; Traditional medicinal plant; Insulinotropic effect