



**QUANTIFICATION OF INTERLEUKIN (IL-12) IN PERIPHERAL BLOOD
MONONUCLEAR CELLS TREATED WITH ETHANOLIC EXTRACTION
OF *Gynura procumbens***

By

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ABSTRACT

Quantification of Interleukin 12 (IL-12) in Peripheral Blood Mononuclear Cells Treated with Ethanolic Extraction of *Gynura procumbens*

Gynura procumbens is an indigenous plant of southern Asia that has been traditionally use for anti-hyperglycaemic, anti-inflammation, anti-hyperlipidemia and anti-cancer. The aim of this study was to investigate interleukin-12 (IL-12) level in peripheral blood mononuclear cells (PBMC) treated with ethanolic extraction of *G. procumbens*. Blood form healthy donor was drawn and PBMC was fractionated by using Ficoll separation. The production of IL-12 was evaluated in the cells incubated in 96 well plates according to groups; extraction treated with plain RPMI 1640 media extraction (Group 1), with no treatment (Group 2); with extraction and treatment of CLI-095, a toll-like receptor (TLR) 4-specific inhibitor (Group 3), with extraction and treatment of polymyxin B to evaluate whether endotoxin present in *G. procumbens* contribute to its immuno-stimulatory activity (Group 4). The IL-12 concentration of each group were evaluated by using Luminex® 200. *G. procumbens* does not exhibit potent of IL-12 level in PBMC. Only 800 mg/ μ L shows reading in Group 1. There was same concentration of IL-12 in 50mg/ μ L and 200mg/ μ L for Group 2. In Group 3 the activity are partially blocked by CLI-095 treatment but were increased in a dose-dependant matter except there was no reading in 200mg/ μ L . Meanwhile Group 4, no IL-12 produced as the activity were completely blocked by polymyxin B. The result demonstrate that *G. procumbens* ethanolic extraction has no significant immunomodulatory activity of IL-12. This study suggest from the finding of this medicinal plant is safe to consume and does not suppress or stimulate the level of IL-12.

Keywords: *Gynura procumbens*, Interleukin-12, TLR4, PBMC, ethanolic extraction, immunomodulatory, Luminex®

CHAPTER 1

INTRODUCTION

1.1 Background of Study

Gynura procumbens is an important plants in tropical regions, especially Southeast Asia such as Malaysia, Indonesia and Thailand as local name which known as ‘Sambung Nyawa’, (Perry, 1980) has been consume as medicine and vegetable for a very long time especially the fresh leaves are served with rice for dishes as salad and ulams (Hew & Gem, 2011). As a traditional medicine, *G. procumbens* leaves used as a treatments of many disease caused by oxidative stress, such as inflammation, cancer diabetes and hypertension as well as many general diseases (Perry, 1980).



Figure 1.1: *Gynura procumbens*
(Source: ashitaba.blogspot.com)