Effect of *Fimbristylis ovata* on receptor for advanced glycation end-products, proinflammatory cytokines, and cell adhesion molecule level and gene expression in U937 and bEnd.3 cell lines

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Received May 29, 2014
Accepted October 17, 2014
Published April 27, 2015
DOI http://dx.doi.org/10.4238/2015.April.27.13

ABSTRACT. *Fimbristylis ovata* has been long used as a traditional medicine for chronic inflammatory diseases; however, there are no data regarding its anti-inflammatory properties. In this study, we investigated the effects of *F. ovata* extracts on the secretion of pro-inflammatory cytokines, cell adhesion molecule, and receptor for advanced glycation end-products (RAGE) in lipopolysaccharide-stimulated cells. *F. ovata* was extracted using the maceration method with 3 different solvents: ethanol, methanol, and water. The effect of *F. ovata* extracts on cell viability was evaluated using the MTT assay. Pro-inflammatory cytokines and cell adhesion molecules were investigated by reverse transcription-polymerase chain reaction and an enzyme-linked immunosorbent assay. Upon incubation with *F. ovata* extracts up to 100 μg/mL, cell viability was more than 80%. *F. ovata* extracts could inhibit interleukin-6 level and gene expression as well as the RAGE gene in the
monocytic cell line U937. Moreover, the results showed that vascular cell adhesion molecule 1 secretion and gene expression were decreased when lipopolysaccharide-activated brain endothelial cells (bEnd.3) were treated with *F. ovata* extracts. Therefore, the anti-inflammatory activity of *F. ovata* extracts may result from their inhibitory actions via the RAGE signaling pathway.

**Key words:** bEnd.3; Cell adhesion molecule; *Fimbristylis ovata*; U937; Proinflammatory cytokines; Random activation of gene expression