

World Congress on **CARDIOLOGY**

October 21, 2021 | Webinar

**Evaluation of Glossogyne tenuifolia extract on enhancing nitric oxide production for prevention of endothelial dysfunction by an in vitro model****Jer-Yiing Hsiung***I-Shou University, Taiwan*

The vascular nitric oxide (NO) system has a protective effect in atherosclerosis. NO is generated from the conversion of L-arginine to L-citrulline by the enzymatic action of endothelial NO synthase (eNOS). Compounds with the effect of enhancing eNOS expression are considered to be candidates for the prevention of atherosclerosis. In this study, extracts from the aerial, root, and whole plant of *Glossogyne tenuifolia* (GT) were obtained with ethanol, n-hexane, ethyl acetate (EA), and methanol extraction, respectively. The effects of these GT extracts on the synthesis of NO and the expression of eNOS in human umbilical vein endothelial cells (HUVECs) were investigated. NO production was determined as nitrite by colorimetry, following the Griess reaction. The treatment of HUVECs with EA extract from the root of GT and n-hexane, methanol, and ethanol extract from the aerial, root, and whole plant of GT increased NO production in a dose-dependent manner. When at a dose of 160 µg/mL, NO production increased from 0.9 to 18.4-fold. Among these extracts, the methanol extract from the root of GT (R/M GTE) exhibited the most potent effect on NO production (increased by 18.4-fold). Furthermore, using Western blot and RT-PCR analysis, treatment of HUVECs with the R/M GTE increased both eNOS protein and mRNA expression. In addition, Western blot analysis revealed that the R/M GTE increased eNOS phosphorylation at serine1177 as early as 15 min after treatment. The chemical composition for the main ingredients was also performed by HPLC analysis. In conclusion, the present study demonstrated that GT extracts increased NO production in HUVECs and that the R/M GTE increased NO production via increasing eNOS expression and activation by phosphorylation of eNOS at serine1177.

**Biography**

Jer-Yiing Hsiung has expertise in investigating the potentials of natural products in medicinal application. For decades, he focuses especially on Chinese herbs such as *Glossogyne tenuifolia* (GT), *Siegesbeckia orientalis*, and *Anrodia cinnamomea*. In his laboratory, he and colleagues have established chemical, enzymatic, cellular and animal models for evaluation of bioactivities of plant samples against tumors, inflammation, oxidative stress, glycation, etc. Results have led them to examine the potential applications of these plants for anti-cancer, anti-diabetes, anti-atherosclerosis, and anti-osteoclastogenesis. They found that GT can protect against endothelial injury by suppressing the formation of free reactive oxygen species, and exert anti-atherosclerotic effect by inhibiting monocytes' adhesion to endothelium. They have also found that GT can attenuate the proliferation and migration of vascular smooth muscle cells. In the present study, they aim to examine whether GT can increase the production of NO and subsequently serve as a potential mean to prevent endothelial dysfunction.

jyhsiung@isu.edu.tw