INFORMATION ABOUT NEW CONTRIBUTIONS OF THE THESIS

Full Name of the Ph.D. Candidate: **Pham Thi Lan**

Thesis Title: **The Study of the Anti-Diabetic Effects of *Mimosa Pudica* L. Leaves in Experimental Models**

Major: **Pharmacology – Clinical Pharmacy** Code: **9720205**

Full Name of Supervisor:

Supervisor 1: **Assoc. Prof. Dr. Bui Thanh Tung**

Supervisor 2: **Assoc. Prof. Dr. Pham Thi Nguyet Hang**

Training Institution: **National Institute of Medicine Materials**

Summary of the new contributions of the thesis:

- In this study, we assessed the inhibitory effects of protocatechuic acid and syringic acid compounds from the *Mimosa Pudica* L. leaves on enzymes related to the diabetes mechanism. The research results demonstrated that both compounds exhibited potent inhibitory activity against α-glucosidase and PTP-1B, which are crucial targets in diabetes treatment.
- The protective effects on cells against MGO-induced damage under high glucose conditions by the EtOAc fraction of *Mimosa Pudica* L. leaves extract and two compounds were also elucidated through *in vitro* experiments.
- The EtOAc fraction (MP-E, 50 and 100 mg/kg) demonstrated a blood glucose-lowering effect in the OGTT model.
- Regarding the effects of the EtOAc fraction on mice induced type 2 diabetes by a high-fat diet and STZ at low dose, after 60 days of treatment, at a doses of 50 mg/kg/day and 100 mg/kg/day, the EtOAc fraction exhibited significant effects: notably reducing blood glucose levels, improving blood lipid profiles, aiding in the enhancement of kidney function-related indices, reducing inflammation, alleviating oxidative stress, and significantly improving the histopathological structure of the kidney in the type 2 diabetes-induced mice model by STZ.
- The proposed mechanisms of the blood glucose-lowering effects of EtOAc

fraction of the *Mimosa Pudica* L. leaves extract may involve the inhibition of α-glucosidase and PTP-1B enzymes, reduction of oxidative stress (decreased MDA concentration and increased levels of antioxidant markers such as SOD, CAT, GPx in the experimental mouse kidney tissue), prevention of diabetic nephropathy complications in experimental type 2 diabetes mice, and improvement in kidney inflammation, by reduced levels of inflammatory markers TNF-α and IL-1β.

Ha Noi, 15 February 2024

SUPERVISORS **PH.D. CANDIDATE**

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