

NEW FINDINGS OF DOCTORAL DISSERTATION

Name of Doctoral candidate: Doan Thi Huong

Dissertation title: “Study on chemical constituents and biological effects in Alzheimer's disease-oriented treatment of *Huperzia phlegmaria* (L.) Rothm.”

Speciality: Medicinal Materials - Traditional Pharmacy

Code of speciality: 9720206

Name of academic advisors:

1. Prof. Dr. Nguyen Thi Hoai
2. Prof. Dr. Pham Thanh Ky

Name of academic institute: National Institute of Medicinal Materials

Summary of new findings of the dissertation:

1. Botany

The thesis is the first document to describe in detail the morphology, micro-anatomy of stems and leaves, microscopic characteristics of arial-part powder of *Huperzia phlegmaria* (L.) Rothm., Lycopodiaceae.

2. Chemical constituents

Structure of 15 compounds isolated from *Huperzia phlegmaria* (L.) Rothm were identified, in which,

- 4 new compounds including 2 alkaloids named huperphlegmine A and huperphlegmine B, 2 abietane diterpenoids named huperphlegmarine A and huperphlegmarine B.
- 3 compounds were isolated from genus *Huperzia* Bernh. for the first time: phlegmariurine B, lycoxanthol and 21 β -hydroxyserrat-14-en-3 β -yl acetate.
- 3 compounds were isolated from *Huperzia phlegmaria* (L.) Rothm for the first time: 5-hydroxymethyl-2-furaldehyde, rehmanone C and loliolide.

2. Toxicity and Biological activities:

- Acute toxicity of the alkaloid extracts of *Huperzia phlegmaria* (L.) Rothm were published for the first time.
- The thesis is the first publication on:

- + The AChE inhibitory activity *in vitro* of the isolated compounds and extracted fractions (methanol, *n*-hexan, dichloromethan, ethylacetate, water, and alkaloid fraction) from *Huperzia phlegmaria*.
- + The ameliorating effects of the alkaloid fraction on memory and cognitive dysfunction in scopolamine-treated mice through the Y maze test, the Morris water maze and the novel object recognition tests.
- + The AChE inhibitory activity *in vivo* of the alkaloid extraction of *Huperzia phlegmaria* in scopolamine-treated mice.
- + Anti-aging effects of alkaloid extraction of *Huperzia phlegmaria* on the D-galactose-induced brain ageing model through evaluation of indicators MDA, SOD and GSH-Px.

Hanoi, March, 2021

ACADEMIC ADVISORS

DOCTORAL CANDIDATE

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