

## NEW FINDINGS OF DOCTORAL DISSERTATION

**Name of Doctoral candidate:** Hoang Thi Dieu Huong

**Dissertation title:** “Study on chemical constituents and biological activities of *Elsholtzia penduliflora* W. W. Smith”

**Speciality:** Medicinal Materials - Traditional Pharmacy

**Code of specciality:** 9720206

**Name of academic advisors:**

1. Assoc. Prof. Dr. Do Thi Ha
2. Dr. Le Thi Kim Van

**Name of academic institute:** National Institute of Medicinal Materials

**Summary of new findings of the dissertation:**

### ***1. Chemical constituents:***

- The content of essential oil from *Elsholtzia penduliflora* W. W. Smith was determined: in Sin Ho (0.87%), Sa Pa (0.85%) and Bat Xat (0.88%). The main constituent of them was 1,8-cineole (57.73 – 74.42%).

- Structure of 23 compounds isolated from *Elsholtzia penduliflora* W. W. Smith were identified, in which:

- ✓ 7 new saponin triterpenoides named Pendulosid A-G.
- ✓ 11 compounds were isolated from genus *Elsholtzia* Willd. for the first time: Sericoside, 2 $\alpha$ ,3 $\alpha$ ,19 $\alpha$ ,24-tetrahydroxyolean-12-en-28-oic acid 28-O- $\beta$ -D-glucopyranoside, kaji-ichigoside F1, rosamultin, officinoterpenoside B, pruvuloside B, 24-hydroxytormentic acid ester glucoside, niga-ichigoside F1, thymoquinol 5-O- $\beta$ -D-glucopyranoside, thymoquinol 2-O- $\beta$ -D-glucopyranoside and foliachinenoside A1.
- ✓ 5 compounds were isolated from *Elsholtzia penduliflora* W. W. Smith for the first time in Vietnam: Acid *trans*-cinnamic, acid hyptadienic, tectochrysin,  $\beta$ -sitosterol and daucosterol.

## **2. Biological activities:**

Anti-inflammatory and anti-cancer effects *in vitro* of *Elsholtzia penduliflora* W. Smith were published for the first time.

- *Anti-inflammatory effect in vitro*: The ethylacetate fraction (20 µg/mL) and compounds pendulosid E, pendulosid C, rosamultin (3 µM) inhibited PGE<sub>2</sub> production and reduced mRNA expression of COX-2 enzyme on RAW 264.7 cells.
- *Cytotoxic activity against four human cancer cell lines in vitro*:
  - + The IC<sub>50</sub> values of ethylacetate fraction were 16.86 µg/mL (A549 cell line), 22.67 µg/mL (MCF-7 cell line), 29.49 µg/mL (HepG2 cell line) and 29.20 µg/mL (K562 cell line).
  - + The IC<sub>50</sub> values of sericoside were 7.725 µM (A549 cell line), 12.65 µM (MCF-7 cell line), 16.91 µM (HepG2 cell line) and 13.10 µM (K562 cell line).
  - + The IC<sub>50</sub> values of penduloside C were 7.846 µM (A549 cell line), 10.79 µM (MCF-7 cell line), 12.52 µM (HepG2 cell line) and 12.49 µM (K562 cell line).
  - + The IC<sub>50</sub> values of penduloside G were 4.882 µM (A549 cell line), 5.406 µM (MCF-7 cell line), 6.333 µM (HepG2 cell line) and 7.350 µM (K562 cell line).

*Hanoi, November 08<sup>th</sup>, 2022*

**ACADEMIC ADVISORS**

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