NEW FINDINGS OF DOCTORAL DISSERTATION

Name of Doctoral candidate: Ha Thi Thanh Huong

Dissertation title: *"Study on botanical properties, chemical constituents and biological activities of the medicinal plant Phong quy sa pa (Anemone chapaensis Gagnep., Ranunculaceae)''*

Speciality: Medicinal Material - Traditional Pharmacy

Code of speciality: 9720206

Name of academic advisors:

1. Assoc. Prof. Dr. Phuong Thien Thuong
2. Assoc. Prof. Dr. Sc. Nguyen Minh Khoi

Name of academic institute: National Institute of Medicinal Materials

Summary of new findings of the dissertation:

1. Botany

- The scientific name of the research samples collected in Sa Pa, Lao Cai province, Vietnam were identified as *Anemone chapaensis* Gagnep., 1929, Ranunculaceae.

- Morphological characteristics including leaves, stems, roots, flowers, fruits, seeds of *Anemone chapaensis* were documented. The microscopic characteristics of leaves, stems, roots and powder characteristics of the underground parts of the research sample were also described. These are the most detailed and specific publications on the botanical research of this anemone species.

2. Chemical constituents

- 15 compounds have been isolated from the research sample, in which, 01 new saponin compound is 3-O-β-D-ribopyranosyl- (1 → 3) -α-L-rhamnopyranosyl- (1 → 2) -α-L-arabinopyranosyl hederagenin-28-O-β-D-glucopyranosyl- (1 → 6) -β-D glucopyranosid (ACL1, chapaenosid), there are 6 compounds including blumenol A (**ACL5**), arctigenin (**ACL8**) , arctiin (**ACL9**), trans-tilirosid (**ACL10**), 5-hydroxymethylfurfural (**ACL11**), and 3-hydroxy-4-methyl-γ-butyrolactone (**ACR4**) were first found in the genus *Anemone*.

- This is the first announcement about the chemical composition of *A. chapaensis* Gagnep.

3. Biological activities

- This is the first study about the inhibitory activity on production of LPS-stimulated NO in macrophages of samples extracted from *A. chapaensis*.

- The results of the study showed that the compound **ACR2** (Huzhangosid A) has anti-inflammatory effect through inhibition of COX-2, this is the first report about inhibitory effect of COX-2 protein expression in the LPS-stimulated RAW264.7 macrophages for compounds extracted from this anemone species.

The good effects of the isolated compounds is the scientific basis to help explain the mechanism of anti-inflammatory effects of the underground parts of this medicinal plant through the pathway of inhibiting NO and COX-2.

- The study has shown that the compound **ACR1** (Prosapogenin CP6) was capable of poisoning 08 cancer cell lines including HepG2, A549, MCF7, Ovcar-8, NCI-N87, RD, Panc-1, MIA Paca-2 with IC50 values of 16.7; 13.2; 24.1; 11.8; 5.4; 7.5; 7.5; and 2.7 μg / ml, respectively. Meanwhile compound **ACR2** (Huzhangosid A) was effective on 05 cancer cell lines including HepG2, OVCAR-8, NCI-N87, RD, and PANC-1 with IC50 values of 11.3; 10.6; 18.2; 12.2; and 19.6 μg / ml, respectively. This is the first report about the toxic effects on cancer cell lines of two compounds **ACR1** and **ACR2** isolated from the underground part of *A. chapaensis*.

Hanoi, 21st August 2020

Academic advisors **Doctoral Candidate**

Phương Thiện Thương **Nguyễn Minh Khởi** **Hà Thị Thanh Hương**