NEW FINDINGS OF DISSERTATION

1. INTRODUCTION

Name of Ph.D candidate: Nguyen Thi Phuong

Dissertation title: Study on chemical constituents and biological activities of the medicinal plant *Leea rubra* Blume ex Spreng., (family Leeaceae).

Speciality: Traditional Pharmacy **Code number:** 62720406

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Summary of new findings:

1. Botany

- Comprehensive description of the morphological characteristics of the plant *Leea rubra*, especially the flowers, fruits, and seeds.
- This is the first report of microscopic characteristics of stems, leaflets and roots of the medicinal plant *L. rubra*.

2. Chemical constituents

- Ten compounds were firstly isolated and reported from *Leea* genus (and also from Leeaceae), including europetin-3-*O*-*α*-L-rhamnopyranoside, rhamnetin-3-*O*-*α*-L-rhamnopyranoside, juglanin, artabotrysid B, arctiin, maslinic acid, lup-20(29)-en-3*β*,6*α*-diol, huzhangoside D, stigmast-4-en-3,6-dion, goniothalamin.
- Eighteen compounds were isolated for the first time from species *Leea rubra*, including kaempferol, quercetin, europetin-3-*O*-*α*-L-rhamnopyranoside, rhamnetin-3-*O*-*α*-L-rhamnopyranosid, juglanin, artabotrysid B, protocatechuic acid, arctiin, *β*-sitosterol, daucosterol, ursolic acid, oleanolic acid, maslinic acid, *β*-amyrin và huzhangoside D.

  The results showed clearly the diversity of chemical constituents of *Leea rubra*. Two main groups are identified as flavonoid (07 compounds) and triterpenoid (05 compounds).
- Quantification of gallic acid from roots and stems of *Leea rubra* (0.236 % và 0.116 %, respectively); simultaneous quantification of gallic acid and europetin-3-*O*-α-L-rhamnopyranoside from leaves (0.142 % and 0.097 %) by HPLC.

3. Biological activities

- The study afforded the scientific proof of anti-inflammatory and analgesic activities of the medicinal plant *Leea rubra* in traditional medicine. The study also suggested that the leaves of *L. rubra* showed more potential activity than that of roots, leading to the new possibility of using leaves instead of roots, contributing to the sustainable usage of medicinal plant *L. rubra*.
- The study indicated that mechanism of anti-inflammatory action of *Leea rubra* is the inhibition on some enzymes, including xanthine oxidase (XO), lipoxigenase (LOX) and cyclooxygenase 2 (COX-2). The study also demonstrated the bioactive compounds standing for the anti-inflammatory activity of *L. rubra*. These compounds include phenolics (phenolic acids, flavonoids) and triterpenoid (betulinic acic, ursolic acid, maslinic acid, huzhangoside D).
- This is the first report on suppressive activity against enzyme HIV-1 protease of extracts from leaves, roots and stems of *Leea rubra* and the compound lup-20(29)-en-3β,6α-diol isolated from stems of *L. rubra*.

Inconclusion, the dissertation provides many new contributions on chemical constituents as well as biological activities of the plant *Leea rubra*, which might initial new insight for further studies on this medicinal plant in the future.

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