

NEW FINDINGS OF DOCTORAL DISSERTATION

Name of Doctoral candidate: Doan Thai Hung

Dissertation title: Study on chemical constituents and biological activities of the medicinal plant *Polygala arillata* Buch.-Ham. ex D. Don, (Polygalaceae).

Speciality: Traditional Pharmacy

Code of speciality: 972.02.06

Name of academic advisors:

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

Name of academic institute: Vietnam 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 *Polygala arillata* Buch.- Ham.ex D. Don (Polygalaceae).
- Morphological characteristics including leaves, stems, roots, flowers, fruits, seeds of *Polygala arillata* were documented. The microscopic characteristics of leaves, stems, roots were also described.

2. Chemical constituents

Sixteen compounds were isolated from roots of *Polygala arillata* (VC1-16), among these compounds:

- Two new compounds: 1-*O*-(*n*-butyl-4-hydroxy-2-methylenbutanoat)- β -D-glucopyranose (VC9) và 1,4'-di-*O*-(*E*)-coumaroyl-3-*O*-benzoyl-2',3'-di-*O*- β -D-glucopyranosyl-6'-*O*-acetylsucrose (VC15).
- One firstly isolated compounds from genus *Polygala*: 4-hydroxy-2-methylenbutanoic acid (VC6)
- Eight firstly isolated compounds from species *Polygala arillata*: 1,7-dihydroxy-4-methoxyxanthone (VC1), 1,3-dihydroxyxanthone (VC2), 1,7-dihydroxyxanthone (VC3), 1,7-dimethoxyxanthone (VC5), syringic acid (VC7), ferulic acid (VC8), tricornose B (VC10), 3-*O*-(*E*)-3,4,5-trimethoxycinnamoyl-6'-*O*-benzoylsucrose (VC11).

3. Biological activities

- This is first report on the peripheral analgesic, acute anti-inflammatory, chronic anti-inflammatory effects on *in vivo* models of ethanol extract (VCE) and *n*-butanol fraction (VCB) of roots of *Polygala arillata*.

- The inhibitory activity on production of LPS-stimulated NO in RAW 264.7 macrophages of VCE, VCB, 3-*O*-(*E*)-3,4,5-trimethoxycinnamoyl-6'-*O*-benzoylsucrose (**VC11**), tenuifoliside C (**VC12**), 3,6'-di-*O*-sinapoylsucrose (**VC13**) are studied for the first time.

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