NEW FINDINGS OF THE DISSERTATION

Dissertation title: Study on the chemical constituents and *in vitro* immunomodulatory and anti-inflammatory effects of the twigs and leaves of *Wikstroemia indica* (L.) C.A.Mey.

Specialty: Medicinal Materials - Traditional Pharmacy **Code number**: 9720206

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Scientific supervisors:

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Academic institution: National Institute of Medicinal Materials

Summary of new findings

The findings of the thesis were published for the first time on *W.indica*.

1. Chemical Constituents

Isolated and elucidated the chemical structures of 19 compounds from the ethyl acetate (**WIE**) and aqueous (**WIW**) fractions of the twigs and leaves of *Wikstroemia indica*, in which:

+ 05 compounds were isolated for the first time from the species *Wikstroemia indica*, including: 01 coumarin, wikstronutin (**WI7**); and 04 lignan compounds, (7*S**,8*R**)-dehydrodiconiferyl alcohol 4-*O*-*β*-D-glucopyranoside (**WI16**), (7*S**,8*R**)-5-methoxydehydrodiconiferyl alcohol 4-*O*-*β*-D-glucopyranosid (**WI17**), pinoresinol di-*O*-*β*-D-glucopyranoside (**WI18**), and liriodendrin (**WI19**).

+ 04 compounds were isolated for the first time from the genus *Wikstroemia*, including: 01 flavonoid, kaempferol-3-*O*-rhamnoside (**WI10**); 01 coumarin, adicardin (**WI4**); and 02 lignan compounds, *erythro*-syringylglycerol-8-*O*-4'-sinapyl ether 4-*O*-*β*-D-glucopyranoside (**WI12**) and *erythro*-citrusin B (**WI13**).

+ 02 new lignan compounds, including: *threo*-citrusin B (**WI14**) and isonitidanin-4-*O*-*β*-D-glucoside (**WI15**).

2. *In vitro* activity on inflammation and immunity-related cytokines

+ The fractions exhibiting potent activities on both IL-1β and IL-10 pathways were **WIE** and **WIW**.

+ The compounds demonstrating significant activities on both IL-1β and IL-10 pathways included: umbelliferon (**WI3**), daphnoretin (**WI5**), wikstronutin (**WI7**), triumbelletin-7-O-β-D-glucoside (**WI8**), genkwanin (**WI9**) and liriodendrin (**WI19**).

+ The compounds showing superior inhibitory activity on IL-1β production in RAW 264.7 cell lines compared to other tested compounds were umbelliferon (**WI3**) with an IC_{50} value of 6.4 ± 1.23 μM and liriodendrin (**WI19**) with an of IC_{50} value of 9.73 ± 1.26 μM.

+ The compound demonstrating superior inhibitory activity on IFN-γ and IL-17 production in CD4+ T cells compared to others was umbelliferon (**WI3**), with IC_{50} values of 9.28 ± 1.23 μM and 12.62 ± 2.57 μM, respectively.

+ The compound demonstrating superior inhibitory activity on Foxp3 production in CD4+ T cells compared to others was liriodendrin (**WI19**), with an IC_{50} value of 13.67 ± 1.85 μM.

Hanoi, October 23 , 2026

THE SCIENTIFIC SUPERVISORS **Ph.D. CANDIDATE**

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