INFORMATION ABOUT NEW CONTRIBUTIONS OF THE THESIS

Full name of the PhD student: Nguyen Viet Dung

Thesis name: "Research on plant characteristics, chemical compositions and some biological effects of *Hypericum sampsonii* Hance., (Hypericaceae) family".

Major: Medicinal herbs - Traditional medicine **Code:** 9720206

Full name of the instructor (Academic title, degree):

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Training institution: National Institute of Medicinal Materials

Summary of new results of the thesis:

1. In term of botany

This thesis is the first document in Vietnam describing in detail morphological characteristics of plants, characteristics of micro-dissection of the stems, leaves, roots and powder of the stems, leaves and roots of *Hypericum sampsonii* Hance., (Hypericaceae) family.

2. In term of chemistry

From the aboveground part, *Hypericum sampsonii* Hance., (Hypericaceae) family is isolated with 15 compounds. Their chemical structures are determined by HR-ESI-MS, 1D-, 2D NMR spectroscopy.

Including:

- 5 compounds are firstly isolated from *Hypericum sampsonii* Hance: 3,5,6-trihydroxy-1-methoxyxanthone; Petiolin F; Quecertin-*3′-O-β-D*-galactopyranosid; Quecertin-*3-O-β-D*-galactopyranosid; Cratoxyarborenone F.

- The remaining 10 compounds include (Mangiferin, Quecertin, 3,5-dihydroxy-2′,4′,6′-trimethoxybenzophenone-3-O-α-L-rhamnopyranosid, Neolancerin, Euxanthone, 2-hydroxyxanthone, acid betulinic, 3,5-dihydroxy-2',4',6'-trimethoxybenzophenone, I3-II8-biapigenin và Daucosterol).

3. In term of acute toxicity and biological activity

3.1. Acute toxicity: The aboveground part of *Hypericum sampsonii* Hance leaves has been evaluated to be at very low toxicity in 24 hours at a dose of 225.0 grams of dried medicinal herbs/Kg of body weight.

3.2. Biological activity

- The antioxidant activity of isolated compounds and extracts of *Hypericum sampsonii* Hance leaves on DPPH-free radical scavenging model shows that Mangiferin (HSA1), 3,5,6-trihydroxy-1-methoxyxanthone (HSA2) and the extract of *Hypericum sampsonii* Hance has a low antioxidant activity, in which compound 3,5,6-trihydroxy-1-methoxyxanthone (HSA2) is a xanthone which is firstly isolated from *Hypericum sampsonii* Hance; furthermore, and this is also the first time on which the antioxidant activity of this compound has been mentioned.

- It evaluates the ability to inhibit NO production for the isolated substances, resulting compounds Petiolin F (HSA4), 3,5-dihydroxy-2′,4′,6′-trimethoxybenzophenone-*3-O-α*-L-rhamnopyranosid (HSA9) and 3,5-dihydroxy-2',4',6'-trimethoxybenzophenone (HSA20); in which, Petiolin F (HSA4) is the first compound isolated from of *Hypericum sampsonii* Hance and this is also the first time that the inhibitory activity of NO production of these compounds has been mentioned.

- The acetylcholinesterase enzyme inhibitory activity is evaluated for 9 samples of isolates (Mangiferin; 3,5,6-trihydroxy-1-methoxyxanthone; Petiolin F; 3,5-dihydroxy-2′,4′,6′-trimethoxybenzophenone-*3-O-α*-L-rhamnopyranosid; Neolancerin; Cratoxyarborenone F; Euxanthone; 2-hydroxyxanthone and 3,5-dihydroxy-2',4',6'-trimethoxybenzophenone) and extract of *Hypericum sampsonii* Hance. The result shows that the extract of *Hypericum sampsonii* Hance has a very good inhibitory activity of acetyl cholinesterase enzyme with value of IC_{50}= 19,95 ± 1,09 µg/ml at 2 test concentrations of 100 µg/ml and 500 µg/ml compared with HSA15; in addition, in 9 samples of compounds, Cratoxyarborenone F (HSA15) is firstly mentioned with the ability to inhibit acetyl cholinesterase enzyme.

- The aboveground extract of *Hypericum sampsonii* Hance has been highly evaluated to have a hepatoprotective antioxidant effect equivalent to and slightly better than Sylymarin at a dose of 140 mg/kg with two dosage levels (3.6 grams of DL/kg and 10.8 grams of DL/kg).

- The aboveground extract of *Hypericum sampsonii* Hance has been highly evaluated to improve memory. The results at a dose of 10.8 grams of DL/kg of body weight of rats have an effect on improving memory equivalent to Scopolamin control.

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COLLECTIVE OF INSTRUCTORS **PhD STUDENT**

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