

NEW FINDINGS OF THE DOCTORAL DISSERTATION

Name of Doctoral Candidate: Doan Xuan Dinh

Dissertation Title: “Research on botanical characteristics, chemical composition and some biological effects of *Sedum sarmentosum* Bunge, Crassulaceae”.

Speciality: Medicinal Materials - Traditional Pharmacy

Code of speciality: 9720206

Name of academic advisor:

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Name of academic institute: National Institute of Medicinal Materials

Summary on new findings of the doctoral dissertation:

1. Botanical Characteristic of *Sedum sarmentosum* Bunge

This dissertation represents the first comprehensive documentation in Vietnam detailing the morphological characteristics of the plant, microscopic features of the stem, characteristics of medicinal powder, and the taxonomic identification of *Sedum sarmentosum* Bunge, (Crassulaceae).

2. The chemical composition of *Sedum sarmentosum* Bunge

From the above ground part, the researchers isolated 18 pure compounds, including 1 megastigman (SSH2 - *Sarmentol A*), 5 megastigman glycosid (SSH3 - *Myrsiniosid A*, SSH4 - *Simplicifloranosid*, SSH7 - *Sedumosid I*, SSH9 - *Sedumosid C* và SSH24 - *Sedumosid K*), 1 flavon (SSH1 - *Luteolin*), 5 flavon glycosid (SSH8 - *Isorhamnetin-3,7-O-di-β-D-glucosid*, SSH10 - *2-phenylethyl-D-rutinosid*, SSH12 - *3'-Methoxy-3,5,4'-trihydroxyflavon-7-neohesperidosid*, SSH13 - *Quercetin-3-O-β-D-glucopyranose* và SSH17 - *3'-methoxyluteolin-7-O-β-D-glucopyranosid*), 1 lignan glycosid (SSH25 - *Lariciresinol-9-O-β-D-glucopyranosid*), 2 alcohol (SSH22 - *Tyrosol* và SSH29 - *3,4-dimethoxybenzyl*

alcohol) và 3 acid phenolic (SSH19 - *Acid Ferulic*, SSH20 - *Acid p-Hydroxybenzoic* và SSH21 - *Acid trans-p-coumaric*), including a newly identified substance, SSH24, designated as **Sedumosid K**.

3. Toxicological and biological effects of *Sedum sarmentosum* Bunge

- The research findings indicate that *Sedum sarmentosum* Bunge exhibits no acute or sub-chronic toxicity at the administered oral dose.

- Researching the hepatoprotective effect in a model of acute liver injury induced by paracetamol, the study demonstrated that the total methanol extract of *Sedum sarmentosum* Bunge at doses of 0.5 and 1 g/kg body weight in mice exerted hepatoprotective effects. These effects were evidenced by a reduction in ALT activity at both dose levels and AST activity at the 0.5 g/kg body weight dose.

- The hepatoprotective effect of the total methanol extract of *Sedum sarmentosum* Bunge on a model of paracetamol-induced acute liver injury was investigated at two dosage levels, 0.5g and 1g/kg body weight in mice. The study revealed that the total methanol extract of *Sedum sarmentosum* Bunge exhibited hepatoprotective activity in the model of paracetamol-induced acute liver injury, as evidenced by its ability to reduce ALT activity at the dose of 0.5g/kg body weight and AST at the dose of 1g/kg body weight.

- To evaluate the cytotoxic effects on HeLa cancer cells, testing was conducted on twelve compounds (SSH24, SSH9, SSH3, SSH4, SSH7, SSH2, SSH8, SSH13, SSH19, SSH21, SSH20, and SSH22) at the laboratory of Professor Suresh, Toyama University, Japan. The results indicated that all twelve compounds isolated from *Sedum sarmentosum* Bunge exhibited pronounced cytotoxic effects on HeLa cells at a concentration of 200 μ M, achieving statistical significance ($p < 0.001$) with cell death rates ranging from 92.5% to 100%. At a concentration of 100 μ M, compounds 10, 14, 15, and 16 induced cell death rates of 30%, 26%, 18%, and 24%, respectively. Conversely, at a concentration of 50 μ M, none of the twelve compounds demonstrated cytotoxic effects on HeLa cells.

Therefore, all twelve compounds isolated from *Sedum sarmentosum* Bunge exhibited cytotoxicity against HeLa cervical cancer cells, albeit to varying degrees.

Scientific Supervisors

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