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Name of thesis: Study on extraction, isolation, structure determination and biological activities of several compounds from *Aralia armata* species (Araliaceae) in Vietnam.

Major: Organic chemistry

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Abstract: From the leaves and roots of *Aralia armata*, 25 compounds have been isolated and determined the structural characterizations. According to the literature review at the time of the study, among the isolated compounds, there are **05 new compounds**, including araliaarmoside, aramatoside A, aramatoside B, aramatoside C, aramatoside D; **08 compounds isolated for the first time from *A. armata***, including 3-*O*- β -D-glucuronopyranosyl-23-hydroxyoleanolic acid-28-*O*- β -D-glucopyranoside, 3-*O*-[α -L-arabinopyranosyl-(1 \rightarrow 3)]- β -D-glucuronopyranosylhederagenin 28-*O*- β -D-glucopyranosyl ester, oleanolic acid-[28-*O*- β -D-glucopyranosyl]-3-*O*-[β -D-galactopyranosyl (1 \rightarrow 3)]-[β -D-glucopyranosyl (1 \rightarrow 2)]- β -D-glucuronopyranoside, 3-*O*-{ β -D-glucopyranosyl-(1 \rightarrow 3)-[β -D-galactopyranosyl-(1 \rightarrow 2)]- β -D-galactopyranosyl}-oleanolic acid, araliasaponin XVI, pseudogisenoside RT1 methyl ester, linalool 3-*O*- β -D-xylopyranosyl-(1 \rightarrow 6)-*O*- β -D- glucopyranoside, linalool 3-*O*- α -L-arabinopyranosyl-(1 \rightarrow 6)-*O*- β -D- glucopyranoside; **06 compounds found in both leaves and roots of this plant**, including 3-*O*- β -D-glucuronopyranosyl-23-hydroxyoleanolic acid-28-*O*- β -D-glucopyranoside, chikusetsusaponin IVa methyl ester, chikusetsusaponin IV, narcissiflorine, stipuleanoside R1, chikusetsusaponin Iva. **04/12 compounds isolated from *A. armata* leaves** show cytotoxic activity against human cancer cell lines HT29, A2058, and A549 with IC₅₀ values in the range 2,01 \pm 0,17 μ M to 18,8 \pm 1,17 μ M; Simultaneously, the compounds are almost safe on the normal cell line HEK-293A; the aqueous fraction of *A. armata* leaves is also evaluated as highly safe in acute toxicity tests in mice. **13/13 compounds isolated from the *A. armata* roots** exhibit significantly intense molluscicidal activity for golden apple snail (*Pomacea canaliculata*) via the LC₅₀ values of the compounds in the range of 7,90 – 17,50 μ g/mL. The active compounds from the roots of *A. armata* are also evaluated as non-toxic at the average lethal concentration of golden apple snails via acute toxicity testing on brine shrimp of near-purified fractions isolated from the aqueous fraction of *A. armata* roots. Based on the literature review at the time of the study, these activities are performed for the first time in *A. armata* species.

Key words: *Aralia armata*, Araliaceae, isolation, cytotoxic activity, molluscicidal activity, acute toxicity.