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KEY WORD: BRINE SHRIMP / *Artemia salina* / *Ammannia baccifera* / ANTIBACTERIAL ACTIVITY

SIRIRAT DEESEENTHUM : TOXICITY TESTING OF SOME PISCICIDAL PLANTS ON BRINE SHRIMP

Artemia salina. THESIS ADVISOR : SANTI TIP-YANG, Ph.D. THESIS CO-ADVISOR : ASSOC. PROF.

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In the search for bioactive compounds from piscicidal plants, ethanolic extracts of *Ammannia baccifera* Linn, *Polygonum hydropiper* Linn and *Spindus rarak* DC. were bioassayed for brine shrimp *Artemia salina* toxicity. According to preliminary bioassays results, *Ammannia baccifera* showed the highest activity to brine shrimp (LC_{50} , 6 hrs = 1.94 $\mu\text{g/ml}$), *Spindus rarak* (LC_{50} , 6 hrs = 314.63 $\mu\text{g/ml}$) and *Polygonum hydropiper* (LC_{50} , 6 hrs = 328.04 $\mu\text{g/ml}$) respectively. The whole plant of *Ammannia baccifera* was extracted with hexane, dichloromethane, ethyl acetate and butanol. The crude extracts of hexane and ethyl acetate showed very high activity to brine shrimp (LC_{50} , 6 hrs = 7.96 and 1.02 $\mu\text{g/ml}$) and piscicidal activity (silver carp) (LC_{50} , 96hrs = 18.42 and 6.91 $\mu\text{g/ml}$).

Fractionation of the crude hexane and ethyl acetate extracts by column chromatography led to the isolation of six substances. All six substances were characterized by mean of physical, chemical properties and spectroscopic data. They were a mixture of steroids (Campesterol, Stigmasterol and β -Sitosterol), 1,4-Naphthoquinone, Lupane triterpenoid, Alkyl trans-4-hydroxycinnamate, 4-Hydroxy-1-oxo-tetrahydronaphthalene and Stigmasteryl-3-O- β -D-glucopyranoside. The bioassay results indicated that 1,4-Naphthoquinone, 4-Hydroxy-1-oxo-tetrahydronaphthalene, Lupane triterpenoid and Alkyl trans-4-hydroxycinnamate showed cytotoxicity to brine shrimp (LC_{50} , 6 hrs = 10.56, 17.88, 46.00 and 166.74 $\mu\text{g/ml}$, respectively). In addition, 1,4-Naphthoquinone and 4-Hydroxy-1-oxo-tetrahydronaphthalene also showed significant antibacterial activity against *Staphylococcus aureus*, *Salmonella typhi* and *Pseudomonas aeruginosa* at MIC = 2.35, 2.35, 9.38 and 150, 150, 300 ppm, respectively. The Alkyl trans-4-hydroxycinnamate was found to be active against only *S. typhi* and *P. aeruginosa* at MIC 250 ppm.

ภาควิชา.....

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