

# **BIOLOGICAL CHARACTERISTICS AND *IN VITRO* ANTI-BACTERIAL EFFECT OF *Equisetum diffusum* D.DON PLANT EXTRACTS ON *Aeromonas hydrophila* CAUSING DISEASE IN COMMON CARP**

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## **Summary**

Antibiotics play a critical role in combating diseases on human and animal, however, abusing have been dramatically rising. Hence, biological approach for antibiotic replacement is necessary. Herbal plants have been increasingly demonstrated their significant importance in the pharmaceutical industry as a biosafety solution in prevention and treatment, an alternative to synthetic chemical drugs. This study aimed to examine the effect of the extract of *Equisetum diffusum* D. DON extracted by six different polarized solvents (distilled water, methanol, ethanol 70%, n-hexan, nbutanol and ethyl acetate). The result showed that the extracted efficiency varied from 2.50% (n-Hexan solvent) to 7.59% (ethanol 70% solvent). By qualitative evaluation on organic solvents in the plant, 9 different compounds were identified as saponin, tannin, flavonoid, carotenoid, polyphenol, alkaloid, reducing sugar, viscosity, coumarin. The anti-bacterial effect of these extracts on *A. hydrophila* causing hemorrhagic disease in common carp was determined in this research. At the concentration of 100 mg/ml, the inhibitory zone was ranged from  $7.0 \pm 0.4$  mm (n-butanol solvent) to  $24.00 \pm 1.6$  mm (ethanol 70% solvent). By agar diffusion method, the minimum inhibitory concentration of the extract in ethanol 70% and methanol was determined as 1.56 mg/ml and 6.25 mg/ml respectively.

**Keywords:** *Extract, Equisetum diffusum D.DON, Anti-bacterial effect, A. hydrophila, common carp.*