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## Evaluation of acute and sub-acute oral toxicity of the aqueous extract of aquilaria malaccensis leaves in Sprague Dawley rats (Article)

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### Abstract

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Aquilaria malaccensis or commonly known as 'gaharu' is a species of Aquilaria genus and belongs to the Thymelaeaceae family. It is widely distributed in Malaysia, Indonesia, and the Borneo Islands. Traditionally, its leaves were used to relieve bruises and studies have shown that they function as an antioxidant, aphrodisiac, and tranquilizer. Despite its proven beneficial medicinal properties, information regarding its toxicity is limited. Therefore, we performed a safety evaluation on the aqueous A. malaccensis leaves extract (AMAE) in Sprague Dawley rats. The assessment of acute toxicity based on the Organization for Economic Cooperation and Development (OECD) Guideline 420 revealed that AMAE did not influence mortality, clinical appearance, body weight gain, or necropsy findings at a dose of 2000 mg/kg body weight. In the sub-acute toxicity, all doses did not significantly modify the body weight and food and water intake. In male rats treated with 2000 mg/kg, there was a significant reduction in the relative weight of liver. Not only that, an increase in alkaline phosphatase and alanine transaminase was also observed in different groups among the female rats. A significant decrease in the creatinine level was also seen among male rats administered with different doses of AMAE. In both sexes, histopathological analysis had shown abnormalities in the liver and kidney of rats treated at the dose of 2000 mg/kg. In conclusion, the 50% lethal dose (LD<sub>50</sub>) of AMAE was estimated to be greater than 2000 mg/kg. In sub-acute duration, the findings suggested that AMAE administered orally is slightly toxic at higher doses (2000 mg/kg) and could provoke functional and structural changes in the kidney and liver of rats. Thus, the extract should be used with caution. © 2019, University of Malaya. All rights reserved.

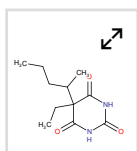
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## References (56)

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- 1 Abotsi, W.K.M., Ainooson, G.K., Gyasi, E.B.  
Acute and sub-acute toxicity studies of the ethanolic extract of the aerial parts of *Hillieria latifolia* (Lam.) H. Walt. (Phytolaccaceae) in rodents (2011) *West African Journal of Pharmacy*, 22, pp. 27-35. Cited 17 times.
- 2 Adamson, R.H.  
The acute lethal dose 50 (LD<sub>50</sub>) of caffeine in albino rats (Open Access)  
(2016) *Regulatory Toxicology and Pharmacology*, 80, pp. 274-276. Cited 6 times.  
<http://www.elsevier.com/inca/publications/store/6/2/2/9/3/9/index.htm>  
doi: 10.1016/j.yrtph.2016.07.011  
View at Publisher
- 3 Adeyemi, O.O., Akindele, A.J., Nwumeh, K.I.  
Acute and subchronic toxicological assessment of *Byrsocarpus coccineus* Schum. and Thonn. (Connaraceae) aqueous leaf extract  
(2010) *International Journal of Applied Research in Natural Products*, 3 (2), pp. 1-11. Cited 19 times.  
<http://healthy-synergies.com/Documents/3-2-1-11.pdf>
- 4 Afffudden, S.K.N., Alwi, H., Hamid, K.H.K.  
Determination of 4'-Hydroxyacetanilide in leaves extract of *Aquilaria malaccensis* by High Pressure Liquid Chromatograph  
(2015) *Procedia-Social and Behavioral Sciences*, 195, pp. 2726-2733. Cited 6 times.