

Antioxidant Effect of Clorella vulgaris on Wistar Rat Kidney Induced by CCl₄: A Histopathological Review

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Abstract	<p>Kidney is very susceptible to damage by toxicological compounds such as carbon tetrachloride (CCl₄). CCl₄ produce free radicals, which cause lipid peroxidation and kidney damage and free radical release, which can be prevented by the administration of exogenous antioxidants, such as Chlorella vulgaris. The aim of study was to determine an effect of antioxidant of C. vulgaris on the histopathological features of Wistar rat kidney which is induced by CCl₄. Experimental study with completely randomized design. The variable was histopathology features of the kidneys. The doses of C. vulgaris extract were 3 mg, 4 mg, and 5 mg per 100 grams of rat body weight (BW). The administration of C. vulgaris extract was performed within 30 days, while the CCl₄ induction (0.25 ml / 100 g BW) was administered orally on the day 9, 12, 16, 19, 23, and 26. Parameters were histopathology features of renal damage, proportion of tubular cell damage, and Bowman's space diameter. The results showed the administration of C. vulgaris extract was able to reduce the impact of damage caused by CCl₄ (p<0.05). This was supported by histologic observations, which was showing a decrease of picnotic and vacuolated cells, normal brush border, and decrease of Bowman's space. In conclusion, 5 mg / 100 g BW of C. vulgaris extract can effectively protect the kidney from damage caused by CCl₄. The results of this study strongly support further research on immunostimulant content test C. vulgaris and determine the efficient dose for representative animals mammals also in humans.</p>
Publisher Name	Department of Biology, Faculty of Mathematics and Sciences, Semarang State University . Ro
Publish Date	2018-04-02
Publish Year	2018
Doi	DOI: 10.15294/biosaintifika.v10i1.13398
Citation	
Source	Biosaintifika: Journal of Biology & Biology Education
Source Issue	Vol 10, No 1 (2018): April 2018
Source Page	169-175
Url	https://journal.unnes.ac.id/nju/index.php/biosaintifika/article/view/13398/7763
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