

## Black Garlic Supplementation and Glomerular Protection in Hyperuricemic Rats: A Study on Kidney Health Prevention

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<b>Abstract</b>	<p>Introduction: Hyperuricemia is a significant risk factor for the development of chronic kidney disease. Excessive uric acid can deposit in the kidneys, triggering inflammatory reactions and oxidative stress, leading to structural damage in the glomeruli. Black garlic, with its antioxidant and bioactive compounds, has the potential to protect the kidneys from hyperuricemia-induced damage. Our objective is to evaluate the effect of black garlic supplementation on the histopathological features of glomeruli in a hyperuricemic rat model. Methods: This study was an analytical observational study using Biological Remnant Materials (BRM) from a previous study. The sample consisted of 30 male Sprague-Dawley rats divided into 5 groups: disease control, drug control (allopurinol), and 3 black garlic dose groups (240 mg/day, 480 mg/day, and 960 mg/day). Data were collected through histopathological examination of kidney tissue using the glomerular damage scoring method (0-3). Data analysis was performed using one-way ANOVA and post hoc LSD tests. Results: Black garlic demonstrated protective effects on the histopathological features of glomeruli in hyperuricemic rats. The 240 mg/day dose showed the most significant improvement in kidney health, reducing glomerular damage scores compared to the disease control group (<math>p &lt; 0.05</math>). These findings suggest that black garlic can serve as a preventive agent against kidney complications caused by hyperuricemia. Conclusion: Black garlic provides protective effects on glomerular histopathology in hyperuricemic rats, with the 240 mg/day dose being the most effective. These results suggest potential use for black garlic in preventing kidney complications in hyperuricemia.</p>
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