

# **A short review on recent utilization of nanocellulose for wastewater remediation and gas separation**

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## **ABSTRACT**

Global transition for greener and sustainable materials for future technology has resulted in a focus on nanocellulose materials. Nanocellulose is nano-sized advanced materials that are widely investigated by researchers owing to its unique properties. Its abundance on earth has also led to the increase in the study for high-end applications such as treatment of water and separation of gas using nanocellulose-based materials. The progress in such study demonstrates the potentiality and applicability of nanocellulose in industrial scale. Conversion of cellulose to nanocellulose can be done via chemical treatment or mechanical treatment which would determine its structure. Therefore, this short review explores the recent 5 years investigation and modification of nanocellulose-based product for application in water remediation and gas separation to make aware of possible enhancement in future study. From the findings, most of literatures reported positive enhancements in removal of heavy metal from water when nanocellulose-based adsorbent was used and gas separation membrane when nanocellulose was added as additives. Niche functional characteristics of nanocellulose that helps to enhance the performance are also reviewed due to its significance for industrial scale study.

**KEYWORDS:** Nanocellulose; Water treatment; Gas separation; Environmental remediation; Green technology

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