

## عنوان مقاله:

Biomass Gasification Process Enhancing using Metal-Organic Frameworks

## محل انتشار:

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## خلاصه مقاله:

In recent years, considering the global warming and climate changes mainly resulting from greenhouse gas emissions, especially carbon dioxide, absorption and storage of carbon dioxide in generating clean and sustainable fuels such as hydrogen fuel production have been heavily studied and investigated. Researchers have presented various methods for carbon dioxide absorption in the hydrogen production process. The biomass gasification process, alongside absorption, can enhance the generation of hydrogen-rich gas by absorbing carbon dioxide. In this study, the first hydrogen generation in the biomass gasification process has been examined, followed by the technologies available for the absorption of carbon dioxide. This study reveals that developing novel materials for absorbing and separating carbon dioxide is essential. Given their unique physicochemical and structural features, metal-organic frameworks, including pore size, high thermal stability, high absorption capacity, and pore size tuning, are helpful adsorbents for absorbing carbon dioxide and achieving clean hydrogen energy. Thus, metal-organic frameworks (MOFs) may efficiently generate high-purity hydrogen by merging biomass gasification with CO<sub>2</sub> adsorption.

## کلمات کلیدی:

Biomass, gasification, Adsorption, CO<sub>2</sub> capture, hydrogen

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