

・ 早生桐のガス化特性の検討

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Investigation of Gasification Characteristics of Early-Successional *Paulownia* (¹National Institute of Technology, Numazu College) ○Gakuto Muramatsu¹, Takuya Ito¹

Currently, biomass is attracting attention as a fossil alternative fuel. While, biomass gasification is characterized by its high versatility. From the perspective of energy security, there is an urgent need to develop means of energy production in Japan. Early successional *Paulownia* can reach 15 m in 6 to 7 years, and their high land utilization rate has attracted attention as a means of energy production in Japan, where arable land is scarce. The purpose of this study was to investigate the characteristics of gasification of early-successional *Paulownia*. Early-successional *Paulownia*, *Paulownia*, *Eucalyptus*, Japanese cedar, and bamboo were pyrolyzed, followed by steam gasification, and the product gases were analyzed by GC. The gasification rate was calculated from the production rates of CO and CO₂, and the gasification rate curve was obtained. As a result, the gasification rate constants of *Paulownia* and early-successional *Paulownia* were almost the same, however it was suggested that the gasification characteristics were different.

Keywords: Early-successional paulownia, biomass gasification, , Energy production , Gasification rate, steam gasification

現在化石代替燃料としてバイオマスが注目されている．中でもバイオマスのガス化は汎用性が高いことが特長である．エネルギーセキュリティの観点から日本国内でのエネルギー生産手段の開発が急務である．早生桐は6～7年で15 mとなるほど成長速度が速く，土地利用率が高いため耕地面積の狭い日本国内でのエネルギー生産手段として注目されている．そこで，本研究では早生桐のガス化の特性の検討を行った．

早生桐，桐，ユーカリ，スギ，タケを900℃で30分間乾留した後に水蒸気ガス化を行い，生成ガスを適当な間隔でサンプリングし，GC-FID，TCDにて分析した．ガス化反応速度を一酸化炭素と二酸化炭素の生成速度から算出し，転化率に対してプロットしてガス化速度曲線を得た．その結果，桐と早生桐ではガス化速度定数はほぼ同程度であったが，ガス化特性は異なることが示唆された．

