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**Effect of Low Temperature of Thermal Pretreatment on Anaerobic Digestion of  
Textile Dyeing Sludge**

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**Abstract**

The minimization and methane production of textile dyeing sludge (TDS) can be simultaneously attained via anaerobic digestion (AD). However, the possible toxicity and complex recalcitrant organic matters involved in limited the hydrolysis of TDS. Therefore, the low-temperature of thermal pretreatment (LTTP) lasting for 1 h at temperatures from 60 to 100 °C was employed to accelerate the hydrolysis and subsequent methane generation of TDS. The results showed that LTTP with temperatures higher than 70 °C obviously improve the AD performance of TDS. Highest accumulative methane production was achieved for 100 °C pretreated TDS and from thermal analysis point of view it was due to the disintegration of some recalcitrant macromolecules in TDS. Nevertheless, 90 °C pretreated TDS did not perform favorable methane yield as expected, attributing to the inhibited acetogenesis

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