

## TEA WASTE AS A CARBON SOURCE FOR VALUE-ADDED PRODUCTION

M. Germec, I. Turhan\*

Akdeniz University Faculty of Engineering,  
Dept of Food Engineering, Antalya, Turkey

Agricultural wastes are come out tones of in the world. These wastes are called as lignocellulosic material because of including lignin, cellulose and hemicellulose. Therefore, tea waste can also be accepted to be lignocellulosic material. It is revealed approximately 30-50 thousand tons in Turkey. With this potential, bioconversion of lignocellulosic wastes (tea waste) to biofuel and high value-added products are extremely important. In this study, ground mixed tea waste was used to be material. In order to obtain a hydrolyzate for fermentation, optimum extraction conditions of tea waste were determined in different solid/liquid rates (1/5, 1/8 and 1/11), temperatures (90, 105 and 121°C), dilute sulfuric acid concentrations (1%, 3% and 5%) at fixed time (15 min.). According to the results, optimum conditions of tea waste extraction were found to be 118.3°C temperature, 1/6.91 solid/liquid rate and 1.29% dilute sulfuric acid concentration in response surface design. The highest total reducing sugar content was determined to be 25, 30 g/L. Moreover, the percentage of tea waste content were found to be 10.82% cellulose, 32.16% hemicellulose and 35.76% lignin. Therefore, tea waste, can be used as a substrat source for fermentation, is a potential carbon source to produce biofuel and high value-added products.

Keywords: Tea waste, substrate, hydrolysis

---

\* Corresponding author: iturhan@akdeniz.edu.tr