

## **Statistical optimization of biohydrogen production using food waste under thermophilic conditions.**

### **ABSTRACT**

In this study, optimization of biohydrogen production from food waste was investigated using response surface methodology. The fermentation was conducted in a serum bottle with 100 mL working volume. A Preliminary experiment showed that initial pH and temperature significantly influenced biohydrogen production. According to the central composite design, the optimal conditions for hydrogen yield were initial pH of 7.5 and temperature of 55.7°C, while the optimal conditions for hydrogen production rate were initial pH of 7.2 and temperature of 55.6°C. The maximum values for hydrogen yield and hydrogen production rate were 120 mL/g carbohydrate and 35.69 mL/h, respectively.

**Keyword:** Biohydrogen; Hydrogen; Response surface methodology; Food waste.