

## Biohydrogen and Potential Vinegar Production from Agricultural Wastes Using *Thermotoga neopolitana*

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**Abstract :** This study is theoretical modelling of the fermentation process of glucose in agricultural wastes like discarded peaches to produce hydrogen, acetic acid, and carbon dioxide using *Thermotoga neopolitana* bacteria. The hydrogen gas produced in this process can be used in hydrogen fuel cells to generate power, and the fermented broth with acetic acid and salts could be utilized as salty vinegar if enough acetic acid is produced. The theoretical modelling was done using SuperPro software, and the results indicated how much sugar (discarded peaches) is required to produce both hydrogen and vinegar for the process to be profitable.

**Keywords :** fermentation, thermotoga, hydrogen, vinegar, biofuel

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