

Food waste and food processing waste for biohydrogen production: a review

ABSTRACT

Food waste and food processing wastes which are abundant in nature and rich in carbon content can be attractive renewable substrates for sustainable biohydrogen production due to wide economic prospects in industries. Many studies utilizing common food wastes such as dining hall or restaurant waste and wastes generated from food processing industries have shown good percentages of hydrogen in gas composition, production yield and rate. The carbon composition in food waste also plays a crucial role in determining high biohydrogen yield. Physicochemical factors such as pre-treatment to seed culture, pH, temperature (mesophilic/thermophilic) and etc. are also important to ensure the dominance of hydrogen-producing bacteria in dark fermentation. This review demonstrates the potential of food waste and food processing waste for biohydrogen production and provides a brief overview of several physicochemical factors that affect biohydrogen production in dark fermentation. The economic viability of biohydrogen production from food waste is also discussed.

Keyword: Biohydrogen; Dark fermentation; Food waste; Food processing waste; Physicochemical factors