

## ABSTRACT

Hydrogen gas is considered as a clean energy that can be produced from multiple sources, wind turbines and pyrolysis being two of the examples. These production methods however, require great amounts of energy and emit carbon dioxide and to overcome this is with the use of biohydrogen. Biohydrogen is a type of hydrogen produced through biological processes from renewable materials, including biomass, agricultural waste and industrial waste, to name a few. There are various studies regarding photosynthetic bacteria in biohydrogen production however these studies have not been compared in terms of hydrogen yield. This study aims to compare the performance of biohydrogen production using photosynthetic bacteria in terms of hydrogen yield and it is done by collecting information from various sources, such as both national and international journals. The journal articles searched and used for this study were between the year 2010-2022 using title keywords including “organic waste”, “biohydrogen production” and “photosynthetic bacteria”. From the collected articles, it was found that glucose, beet molasses, blackstrap molasses, pure sucrose, wheat straw, high-salt wastes, *Calophyllum inophyllum* oil cake, organic acids in sludge as well as potato steam peel produce high yield of biohydrogen, whereas the types of photosynthetic bacteria that has the ability to produce high quantity of hydrogen comprise of *Rhodobacter capsulatus*, *Rhodobacter sphaeroides*, *Rhodobacter capsulatus* JP91, *Rhodovulum sulfidophilum* TH-79, *Rhodovulum sulfidophilum* P5, *Rhodovulum sulfidophilum* TH-102 and *Rhodobacter capsulatus*-PK. Further studies are required in order to fill the gap between each studies that has been previously done for future researchers.