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# Algal Fuel Cell

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Additional information is available at the end of the chapter

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## Abstract

Algal Fuel Cells (AFC) are bioelectric devices that use photosynthetic organisms to turn light and biochemical energy into electrical energy. The potential of a fully biotic AFC still remains an unexplored area of research and hence it has led to rethink the prospective use of plant-based bioelectricity. AFC consists of an anode and a cathode connected by an external electric circuit and separated internally by a membrane/no membrane in which the growth of algae is assessed. The key parameters for evaluating the performance of AFC are electrodes, separators, oxygen supplement, nutrients and its configurations. By controlling these parameters, the electric power production can be optimized. This chapter discusses the recent trends examined by a number of researchers and are interpreted to gain a better understanding. It is stressed that a greater focus must be given for a complete comprehension of the algal processes required for the development of AFC applications. Thus, it can be concluded that a further development of AFC technology with reduced costs and improved performance is required for sustainable development.

**Keywords:** algae, algal fuel cell, photosynthetic electrode, photo bio-reactor, renewable energy

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## 1. Introduction

Almost 80% of world energy consumption is from the combustion of fossil fuels. The depletion of these fossil fuels necessitates the importance of renewable energy synchronization. Fossil