

ABSTRACT

With the current traditional fossil fuels depleting at an alarming rate coupled with environmental degradation because of toxic emissions, there is a mounting desire in search of renewable and sustainable energy resources. In this regard, bioenergy is considered one of the greatest potential to address the global energy demands in order to foster confidence in energy security, economic sustainability, and environmental protection. Global use of biomass to generate electricity and enhanced green energy transport is expected to increase in the near future. Accordingly, the demand for renewable energy is aimed at minimizing energy poverty and mitigation against climate change. Bioenergy despite bioconversion challenges is one of the key solutions to the world's current energy demands. Model bioenergy plant sources – Croton megalocarpus, palm oil, Jatropha, and soybeans are briefly discussed in this review as major sources of bioenergy. The increased focus on bioenergy has been necessitated by high oil and gas prices, and the desire for sustainable energy resources. Nonetheless, corrupt practices and lack of political goodwill has hampered efforts towards achieving the full utilization of bioenergy. Corruption has been widely cited as a major setback to bioenergy development in a range of global jurisdictions. In order to minimize environmental damage, carbon trade has been projected as a necessary action by developing countries to reduce carbon emissions. Generally, the analysis of the use of fossil fuels across the world shows a strong interrelationship involving energy utilization, degradation of air quality, and environmental health concerns.