

Production of bio-oil from oil palm empty fruit bunch by catalytic fast pyrolysis: a review

Abstract

The promising development of catalytic fast pyrolysis (CFP) across a wide range of lignocellulosic biomass for bio-oil production is economically viable. Unreformed bio-oils are not directly compatible with the petrochemical infrastructure due to various physiochemical properties of the oil. High oxygenation of bio-oil is one of its major problems and in situ catalytic upgrading is providing a potential way to overcome this obstacle. Empty fruit bunch (EFB) is a lignocellulosic by-product of the oil palm industry, which have been researched in the context of various fast pyrolysis studies without the usage of catalysts. Malaysia, being the second largest oil palm producer in the world, has a huge incentive to maximise the efficacy of this industry and the utilization of its EFB and other related wastes. This aim of this paper is to review the recent advances in CFP of EFB and compare it to other similar lignocellulosic materials particularly for the production of deoxygenated bio-oil.