Life-cycle greenhouse gas emissions and energy balances of a biodiesel production from palm fatty acid distillate (PFAD)

조현준, 최성호[1], 성노욱[1], 김태형[1], 여영구*
한양대학교; [1]한양대학교 화학공학과
(ykyeo@hanyang.ac.kr*)

Life-cycle greenhouse gas (GHG) emissions and net energy ratio (NER) have been evaluated for the production of palm biodiesel from palm fatty acid distillate (PFAD) which is a by-product in the refining process. For the case that PFAD is regarded as a processing residue, GHG emissions associated with biodiesel production in the considered process is 86.9% less than that of fossil diesel. In the present study, it is also shown that the energy yield from palm methyl ester (PME) production from PFAD is around 4 times larger than the input of fossil energy in the production. In conclusion, the palm biodiesel from PFAD can be an alternative to the 'conventional' palm biodiesel which is made of refined palm oil, and sustainability issues and ethical problems can be considerably minimized with the strategic utilization of palm biodiesel produced from PFAD