Simulasi sintesis renewable diesel berbasis minyak nabati non-pangan = Synthesis simulation of renewable diesel based on non edible vegetable oil

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Abstrak

Upaya intens dilakukan oleh pemerintah Indonesia dalam mengatasi persoalan defisit kebutuhan diesel domestik dengan mewajibkan pencampuran biodiesel pada solar hingga 20 pada tahun 2016. Namun, biodiesel yang ada memiliki beberapa kekurangan diantaranya penggunaan minyak nabati pangan sebagai bahan baku produksi. Simulasi sintesis renewable diesel berbasis minyak nabati non-pangan dengan rute produksi hidrodeoksigenasi trigliserida langsung dibuat dengan simulator Unisim Design R 390.1 pada penelitian ini. Dari simulasi didapatkan kondisi operasi optimal untuk sintesis renewable diesel yaitu pada tekanan 30 bar dan suhu 320?-380?C, dengan konversi 71.50 , yield 45.5 , dan selektivitas 38.3 . Selain itu, diperoleh pula tiga jenis minyak nabati non-pangan yang sesuai untuk menjadi alternatif bahan baku pembuatan renewable diesel di Indonesia, yaitu minyak kosambi, minyak nyamplung, dan minyak kemiri sunan.

.....Intense efforts is exerted by the Indonesian government in solving the domestic diesel demand deficit problem by obligating the mixing of biodiesel in diesel up to 20 on 2016. However, biodiesel has some disadvantages such as the use of edible oils as raw materials for production. Synthesis simulation of non edible vegetable oil based renewable diesel with direct triglyceride hydrodeoxigenation production route was made with Unisim Design R 390.1 simulator in this research. From the simulation, the optimum operating conditions for renewable diesel synthesis reached are 30 bar and temperature 320 380 C, with 71.50 conversion, 45.5 yield and 38.3 selectivity. In addition, three types of non food vegetable oils are also suitable to be an alternative raw material for making renewable diesel in Indonesia, namely kosambi oil, nyamplung oil, and siri kemiri oil.