Pengaruh aditif pyrogallol (py) terhadap ketahanan oksidasi biodiesel minyak kelapa sawit selama masa penyimpanan = Effect of additives pyrogallol oxidation endurance palm oil biodiesel during storage period

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Abstrak

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Alam Indonesia kaya dengan kelapa sawit menjadikan kelapa sawit memiliki potensi besar untuk diajdikan bahan baku pembuatan biodiesel. Walaupun, biodiesel dari minyak kelapa sawit lebih stabil dari minyak lainnya tetapi pasti ada reaksi oksidasi dalam penyimpanan, sehingga tidak dapat memenuhi spesifikasi biodiesel yang disyaratkan pada SNI 7182-2015 yaitu minimal 48 jam. Pada penelitian ini, biodiesel yang disintesis dengan bahan baku minyak kelapa sawit melalui proses tahapan transesterifikasi dilakukan penambahan anti oksidan yaitu pyrogallol dengan rentang konsentrasi 500 ndash; 2000 ppm serta periode pengamatan 1 ndash; 3 minggu. Pyrogallol digunakan untuk penambahan antioksidan karena memiliki efektifitas yang tinggi untuk meningkatkan kestabilan oksidasi biodiesel. Kestabilan oksidasi biodiesel diamati pengujian densitas, angka asam, stabilitas oksidasi dan viskositas kinematic. Penambahan antioksidan pyrogallol 1500 ppm mampu menghambat terjadinya oksidasi biodiesel sampai lebih dari 48 jam yang merupakan kestabilan oksidasi maksimum di minggu ke 2.
<hr>ABSTRAK
Indonesia have plentiful oil palm, which oil palm has great potential for biodiesel production as raw materials. Meanwhile, plm oil biodiesel is more stable than other oil although there must be oxidation reaction in storage, so it can not meet biodiesel specification that is not in SNI 7182 2015 that is at least 48 hours. In this study, biodiesel which is synthesized with palm oil raw materials through the process of transesterification stage is done by addition of anti oxidant that is pyrogallol with concentration range 500 2000 ppm and observation period 1 3 weeks. Pyrogallol is used for the addition of antioxidants because it has a high effectiveness to improve the oxidation stability of biodiesel. The stability of oxidation of biodiesel was observed by density test, acid number, oxidation stability and kinematic viscosity. The addition of 1500 ppm pyrogallol antioxidant can inhibit oxidation of biodiesel up to more than 48 hours which is stability in two week.