

Jatropha Oil Utilization as Basic Material of Grease Lubricant

Title	Jatropha Oil Utilization as Basic Material of Grease Lubricant
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Abstract	<p>Grease is a kind of lubricant having form of semi solid to solid. It is made of three basic components: base oil, thickening agents and additives. Jatropha oil has a potential roles as a grease lubricant base oil. This research aimed to study the differences of basic material compositions towards the grease qualities, to study the thickening agent which had the most suitable for grease production and to determine the best treatment combination of grease formulation using jatropha oil. The research used an experimental method. The tested factors were types of oil consists and thickening agent consists. Physicochemical variables observed were: dropping point, pH, texture and corrosion resistance. The result of the research showed that the differences of basic material compositions gave the influence to the grease dropping point characteristics. The addition of castor oil 15% could decrease the grease dropping point (from 101.33 oC to 99.08 oC) while the addition of mineral oil lubricant 15% could increase the grease dropping point (101.33 oC to 112.58 oC). The thickening agent which had the most suitable for grease production using jatropha oil was LiOH 3.5% + Al(OH)₃ 0.5% produced 128.83 oC of dropping point. The best formulation based on zero-one test method obtained at treatment of M3P6, i.e. the grease which has basic materials composition of jatropha oil + mineral oil lubricant 15% and thickening agent of LiOH 0.5% + Al(OH)₃ 0.5%. That formulation had the characteristic 138 oC of dropping point, pH 7.5, 4.63 mm/dt of texture (NLGI grade of 3) and corrosion resistance included in group 1b (dark orange). Keywords: grease, jatropha oil, castor oil</p>
Publisher Name	Fakultas Teknologi Pertanian Universitas Brawijaya
Publish Date	2012-04-10
Publish Year	2012
Doi	
Citation	
Source	Jurnal Teknologi Pertanian
Source Issue	Vol 13, No 1 (2012)
Source Page	
Url	http://jtp.ub.ac.id/index.php/jtp/article/view/354
Author	Dr Ir TRI YANTO, M.T