Formulasi Gemuk Bio Menggunakan Industrial Grade Palm Oil dan Cellulose Pulp = Formulation of Biogrease Using Industrial Grade Palm Oil and Cellulose Pulp

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Abstrak

Pada penelitian ini, telah dibuat gemuk bio dengan penggunaan Industrial Grade Palm Oil yang merupakan minyak nabati, dicampurkan dengan selulosa sebagai pengental gemuk bio yang diambil sampah kertas. Sintesis gemuk bio berbasis selulosa dimulai dengan tahap pembentukan thickening agent dari bubur kertas selulosa dengan proses agitasi, penyaringan dan pembuangan pengotor, kemudian dicampur dengan carboxymethyl cellulose yang diolah dalam pemanasan hingga 150°C dengan Industrial Grade Palm Oil sebagai base oil-nya dan dihomogenisasi. Uji visual appearance, tekstur dan struktur terhadap gemuk bio dilakukan yang meliputi uji menggunakan alat Fourier-Transform Infrared Spectroscopy (FTIR) dan Scanning Electron Microscope (SEM) yang menghasilkan gemuk bio berbasis selulosa yang memiliki daya gelling dan kelengketan yang baik, yaitu sampel gemuk berwarna coklat terang, bertekstur lembut berserat dengan panjang mulur 9 mm. Dengan menggunakan spektroskopi FTIR, diperoleh keberadaan gugus metilen asimetris C-O-C dan C=O untuk eter dan ester pada wavelength 1060-1239 dan 1710-1742 cm1 dengan posisi transmisi hingga 87%. Dengan menggunakan SEM, diperoleh gambar morfologi sampel yang terdiri atas jaringan serat 3-dimensional yang padat, terhubung satu sama lain dan homogen. Formasi jaringan struktural yang terbentuk kaku namun kuat karena adanya interaksi antar partikel selulosa dan memungkinkan terjadinya aliran gemuk, yaitu perembesan yang baik.
..... In this research, bio grease has been made by using Industrial Grade Palm Oil which is vegetable oil, mixed with cellulose as the thickening agent for bio grease which was taken from paper waste. The synthesis of cellulose-based bio grease begins with the formation of the thickening agent from cellulose pulp by agitation, filtering and removal of impurities, then it was mixed with treated carboxymethyl cellulose which is heated to 150°C with Industrial Grade Palm Oil as the base oil and the homogenized. Tests to obtain visual appearance, texture and structure data of the bio grease were carried out which included tests using Fourier-Transform Infrared Spectroscopy (FTIR) and Scanning Electron Microscope (SEM) which produced cellulose-based bio grease that had good gelling and adhesive performance, which is the sample with light brown color, soft fibrous texture that stretches with an elongated 9 mm length. Using FTIR spectroscopy, C-O-C and C=O asymmetric methylene groups was obtained which indicates the presence of ethers and esters at wavelengths 1060-1239 and 1710-1742 cm1 with transmission positions up to 87%. By using SEM, a morphological image of the sample was obtained which consists of a dense, interconnected and homogeneous 3-dimensional fibrous network. The formation of the structural network formed is rigid but strong due to the interaction between the cellulose particles and allows the flow of grease, which means good percolation of the bio grease.