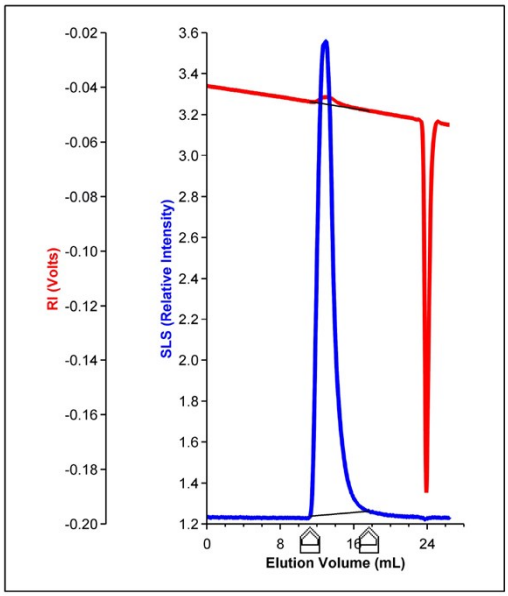
Supporting Information

Rheological behaviors of guar gum derivatives with hydrophobic unsaturated long-chains

Minghua Zhang[1,3], Jianping He[3], Mingyu Deng[3], Peixin Gong[3], Xi Zhang[2], Minmin Fan[2,] * and Ke Wang[2]

[1] College of Polymer Science and Engineering, Sichuan University, Chengdu 610065, China; jianhua851250@163.com (M.Z.)
[2] Polymer Research Institute, Sichuan University, Chengdu 610065, China; fanminmin@scu.edu.cn (M.F.); zhangxi6352@163.com (X.Z.); wkestar@scu.edu.cn (K.W.)
[3] Jingkun Oilfield Chemistry Company, Kunshan 215300, China; hjpsy@vip. sina.com (J.H.); ksdmy@vip.sina.com (M.D.); gpx1025@163.com (P.G.)
* Correspondence: fanminmin@scu.edu.cn (M.F.)



Results

M_n	9.035e+05	g/mol
M_w	2.598e+06	g/mol
M_z	4.175e+06	g/mol
M_p	5.953e+05	g/mol
M_w/M_n	2.876	
M_z/M_w	1.607	
$<M_{10}$	1.447e+06	g/mol
$>M_{90}$	7.345e+06	g/mol
V_p	14.58	mL
$Area_{RI}$	6.040e-03	V*mL
Concentration	1.076	mg/mL
dn/dc	undetermined	mL/g
Sample Recovery	undetermined	%
[η]	undetermined	mL/g
$<Rg>_n$	1.525e+02	nm
$<Rg>_w$	2.284e+02	nm
$<Rg>_z$	2.723e+02	nm

Figure S1. GPC spectrum of purified guar gum (concentration = 1 mg/mL; Flow rate = 0.6 mL/min; temperature = 25 °C).

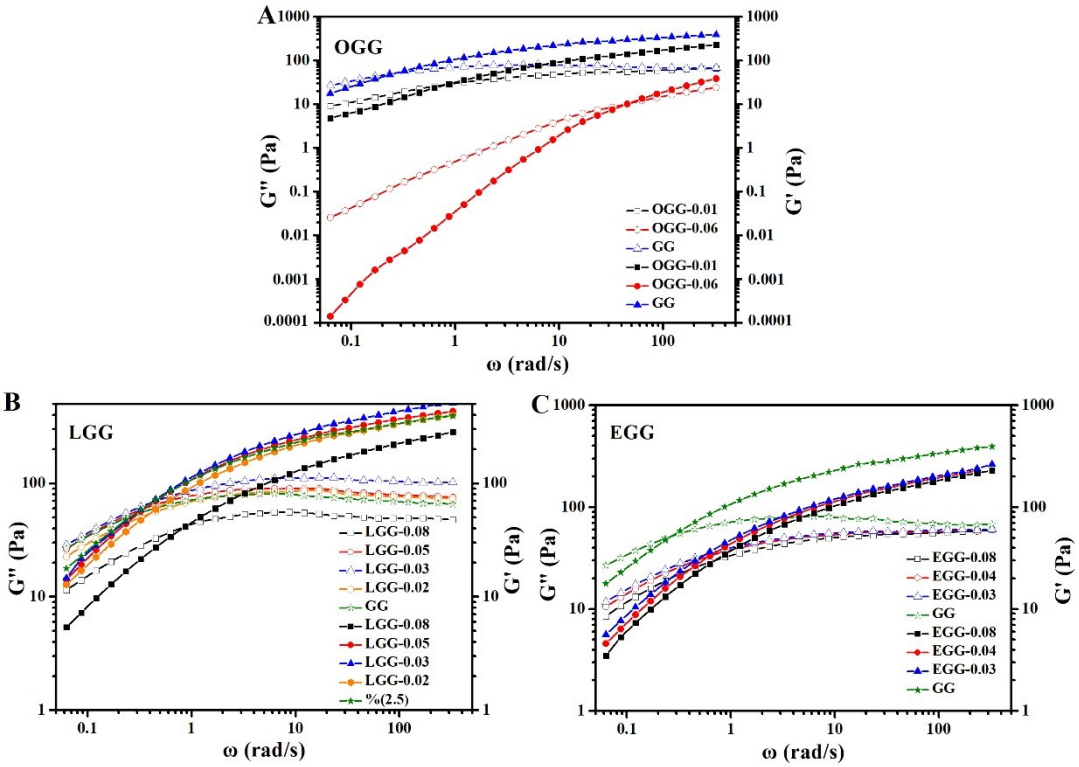


Figure S2. Elastic (Solid) and viscous modulus (Hollow) as a function of angular frequency for the aqueous solutions of (A) OGG, (B) LGG, and (C) EGG with different MS (concentration = 1.8 wt%; temperature = 25 °C; pH = 7.0).

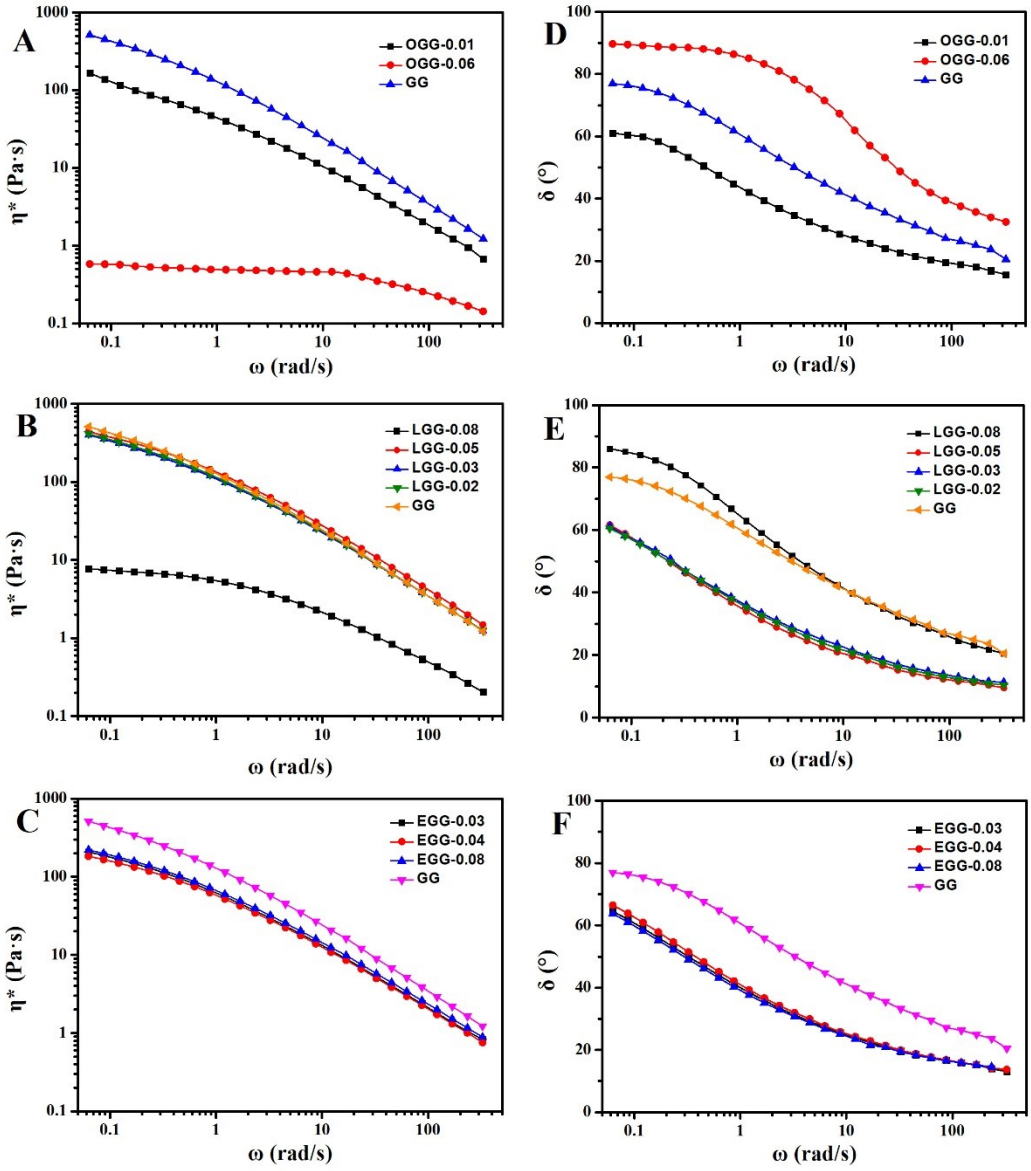


Figure S3. Dynamic complex viscosity (η*) (A-C) and dynamic loss angle (δ) (D-F) as a function of angular frequency (ω) for the aqueous solutions of (A, D) OGG, (B, E) LGG, and (C, F) EGG with different MS (concentration = 1.8 wt%; pH = 7.0; temperature = 25 °C).