

Materials List for

# Ultrafast Lignin Extraction from Unusual Mediterranean Lignocellulosic Residues

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## Materials

Name	Company	Catalog Number	Comments
HPLC Gel Permeation Chromatography	Agilent 1200 series		
1 methylimidazole	Acros organics		
2-deoxy-D-glucose (internal standard)	Sigma Aldrich (St. Louis, USA)		
Acetic acid	Sigma Aldrich (St. Louis, USA)		
Acetic anhydride	Sigma Aldrich (St. Louis, USA)		
Adjustables pipettors			
Alkali			alkali-extracted lignin
Arabinose (99%)	Sigma Aldrich (St. Louis, USA)		
Autoclave	CERTO CLAV (Model CV-22-VAC-Pro)		
Water Bath at 70 °C			
Boric acid	Sigma Aldrich (St. Louis, USA)		
Bromocresol	Sigma Aldrich (St. Louis, USA)		
Catalyst	CTQ (coded A22) (1.5 g K <sub>2</sub> SO <sub>4</sub> + 0.045 g CuSO <sub>4</sub> ·5 H <sub>2</sub> O + 0.045 g TiO <sub>2</sub> )	Merck	
Centrifugation container			
Centrifuge	BECKMAN COULTER	Avanti J-E centrifuge	
Ceramic crucibles			
Choline chloride 99%	Acros organics		
Column	Agilent PLGel Mixed C (alpha 3,000 (4.6 × 250 mm, 5 μm) preceded by a guard column (TSK gel alpha guard column 4.6 mm × 50 mm, 5 μm)		
Column	HP1-methylisoxane (30 m, 0.32 mm, 0.25 mm)		
Crucible porosity N°4 ( Filtering crucible)	Shott Duran Germany	boro 3.3	
Deionized water			

Dessicator			
Dimethylformamide	VWR BDH Chemicals		
Dimethylsulfoxide	Acros organics		
Erlenmeyer flask			
Ethanol	Merck (Darmstadt, Germany)		
Filtering crucibles, porcelain			
Filtration flasks			
Fourier Transformed Intra- Red	Vertex 70 Bruker apparatus equipped with an attenuated total reflectance (ATR) module. Spectra were recorded in the 4,000–400 $\text{cm}^{-1}$ range with 32 scans at a resolution of 4.0 $\text{cm}^{-1}$		
Galactose (98%)	Sigma Aldrich (St. Louis, USA)		
Gaz Chromatography	Agilent (7890 series)		
Glass bottle 100 mL			
Glass tubes ( borosilicate) with teflon caps 10 mL			
Glucose (98%)	Sigma Aldrich (St. Louis, USA)		
Golves			
Graduated cylinder 50 mL /100 mL			
H <sub>2</sub> SO <sub>4</sub> Titrisol (0.1 N)	Merck (Darmstadt, Germany)		
H <sub>2</sub> SO <sub>4</sub> (95-98%)	Sigma Aldrich (St. Louis, USA)	BUCHI R-114)	
Hummer cutter equipped with 1 mm and 0.5 mm sieve	Mill Tteicator (Sweden)	Cyclotec 1093	
Indulin			Raw lignin control
Kjeldahl distiller	Kjeltec 2300 (Foss)		
Kjeldahl tube	FOSS		
Kjeldhal rack			
Kjeldhal digester	Kjeltec 2300 (Foss)		
Kjeldhal suction system			
Lab Chem station Software			GC data analysis
Lactic acid	Merck (Darmstadt, Germany)		
Lithium chloride LiCl	Sigma Aldrich (St. Louis, USA)		
Mannose (98%)	Sigma Aldrich (St. Louis, USA)		
Methyl red			
Microwave	START SYNTH MILESTONE Microwave laboratory system		
Microwave temperature probe			
Microwave container			
Muffle Furnace			
NaOH	Merck (Darmstadt, Germany)		
Nitrogen free- paper			
Opus			spectroscopy software
Oven	GmbH Memmert SNB100	Memmert SNB100	
Oxalic acid	VWR BDH Chemicals		
P 1000			Soda-processed lignin
pH paper			
precision balance			
Infrared spectroscopy			

Quartz cuvette			
Rhamnose (98%)	Sigma Aldrich (St. Louis, USA)		
Rotary vacuum evaporator	Bucher		
Round-bottom flask 500 mL			
sodium borohydride NaBH <sub>4</sub>			
Schott bottle			glass bottle
Sovirel tubes	sovirel		Borosilicate glass tubes
Spatule			
Special tube			
Spectrophotometer	UV-1800 Shimadzu		
Sterilization indicator tape			
Stir bar in teflon			
Stirring plate			
Syringes			
Sodium borohydride	Sigma Aldrich (St. Louis, USA)		
Titrisol	Merck	Merck 109984	0.1 N H <sub>2</sub> SO <sub>4</sub>
Urea	VWR BDH Chemicals		
Vials			
Volumetric flask 2.5 L /5 L	Bucher		
Vortex			
Xylose (98%)	Sigma Aldrich (St. Louis, USA)		