CONTENTS

		Page
1.	Adhesives from Renewable Resources : Historical Perspective and Wood Industry Needs	. 1
2.	Lignin in Adhesives: Introduction and Historical Perspective	13
3.	Search for Lignin Condensation Reactions with Modern NMR Techniques	27
4.	Cross-linking Options for Lignin	43
5.	Modification of Lignins for Use in Phenolic Resins	55
6.	Adhesives Feedstocks from Lignin: Mechanistic Studies on the Oxidative-Cleavage	
	Reaction of Some Lignin Model Compounds	68
7.	Soda Bagasse Lignin Adhesives for Particleboard: Preliminary Results	82
8.	Effects of Phenol – Formaldehyde Copolymer on Gluebond Performance of Lignin –	
	Phenolic Resin Systems	96
9.	Durable Wood Adhesives from Kraft Lignin	110
10.	Room-Temperature Curing Adhesives Based on Lignin and Phenoloxidases	126
11.	Biomass Pyrolysis Oil Feedstocks for Phenolic Adhesives	135
12.	Condensed Tannins in Adhesives: Introduction and Historical Perspectives	155
13.	Viscosity and Formaldehyde Consumption of Procyanidin solutions	172
14.	Reactions of Tannin Model Compounds with Methylolphenols	185
15.	Tannin-Based Adhesives for Finger-Jointing Wood	203
16.	Activation of Some Condensed Tannins via Facile Ring Isomerizations: Potential	
	Adhesive Applications	217
17.	Modification of diisocyanate-Based particleboard and Plywood Glues with Natural	220
10	Polymers: Polyphenols, Carbohydrates, and Proteins	229
18.	Condensed Tannins as Substitutes for Resorcinol in Bonding Polyester and Nylon	2.42
10	Cord to Rubber	242
19.	Research vs. Industrial Practice with Tannin-Based Adhesives	254
20. 21.	Carbohydrates in adhesives: Introduction and Historical Prespective Cellulosic Adhesives	271 289
22.	Utilization of Soda Bagasse Hemicellulose as Corrugated Board Adhesive	305
23.	Starch-and Dextrin-Based Adhesives	326
24.	Cellulose Graft Copolymers for Potential Adhesive Applications: Bonding of Plastics	320
27.	To Wood	337
25.	Carbohydrate-Modified Phenol-Formaldehyde Resins Formulated at Neutral Conditions	355
26.	A Glucose, Urea, and Phenol-Based Adhesive for Bonding Wood	370
27.	Fast-Curing Carbohydrate-Based Adhesives	387
28.	Thermosetting Adhesive Resins from Whey and Whey Byproducts	395
29.	Chemistry of Furan Polymers	408
30.	Polyurethanes from Renewable Resources	424
31.	Blood and Casein Adhesives for Bonding Wood	445
32.	Development of a Microbial System for Production of Mussel Adhesive Protein	453
33.	Adhesives from Marine Mussels	465
34.	Opportunities for Future Development of Adhesives from Renewable Resources	487
Author		495
Affiliation Index		
Subjec	t Index	496