

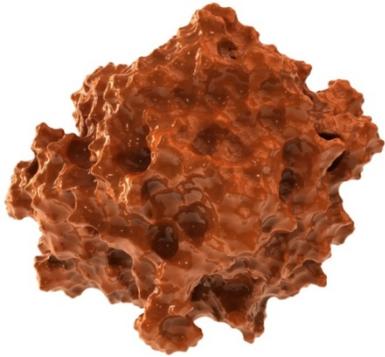
Dakota Bioprocessing Consortium (DakotaBioCon)

South Dakota School of Mines and Technology
Rapid City, SD

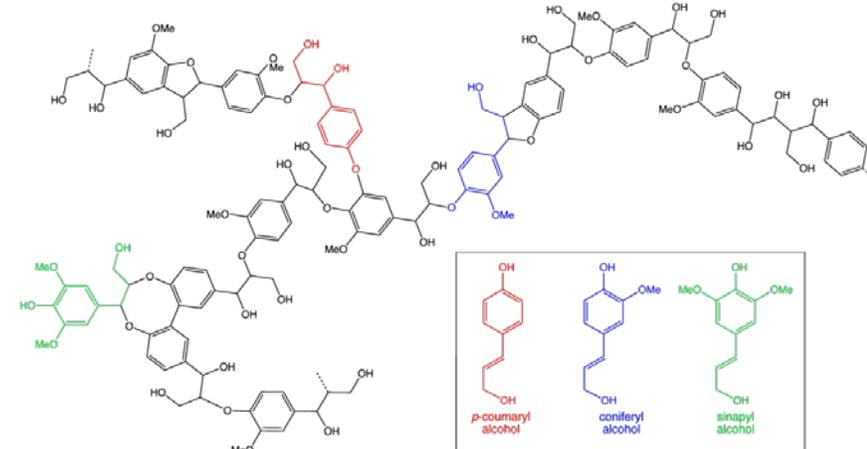


SD EPSCoR
RESEARCH. EDUCATION. ECONOMIC DEVELOPMENT.





Lignin



- Lignin - second most abundant after cellulose, 25-35% in biomass
- Biopolymer of lignin precursors - *p*-coumaryl, coniferyl and sinapyl alcohols
- 50-60 million tons produced by the PPI annually
- Only 2% used commercially (low-value lignosulfonates), \$300 million market
- Rest is used as low-cost fuel for heat generation
- Opportunities to utilize in production of high-value aromatics and polymers
- Potential revenue of up to \$35 billion per year



Dakota Bioprocessing Consortium: DakotaBioCon

NSF EPSCoR Track 2 Grant: \$6 million over 3 years

- **Goals:**

- Build a long-term collaboration among 2 States (ND and SD) and 4 universities (NDSU, UND, SDSU and SDSM&T)
- Develop a collaborative infrastructure for lignin bioprocessing to high-value lignin-derived products

- **Objectives:**

- Convert lignin to LMW compounds using HT hydrotreatment and biodegradation
- Elucidate reaction mechanisms
- Design process/purification schemes to convert LMW precursors to valuable products
- Develop new polymers
- Build & sustain the DakotaBioCon research & education infrastructure



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DakotaBioCon Research Roadmap

