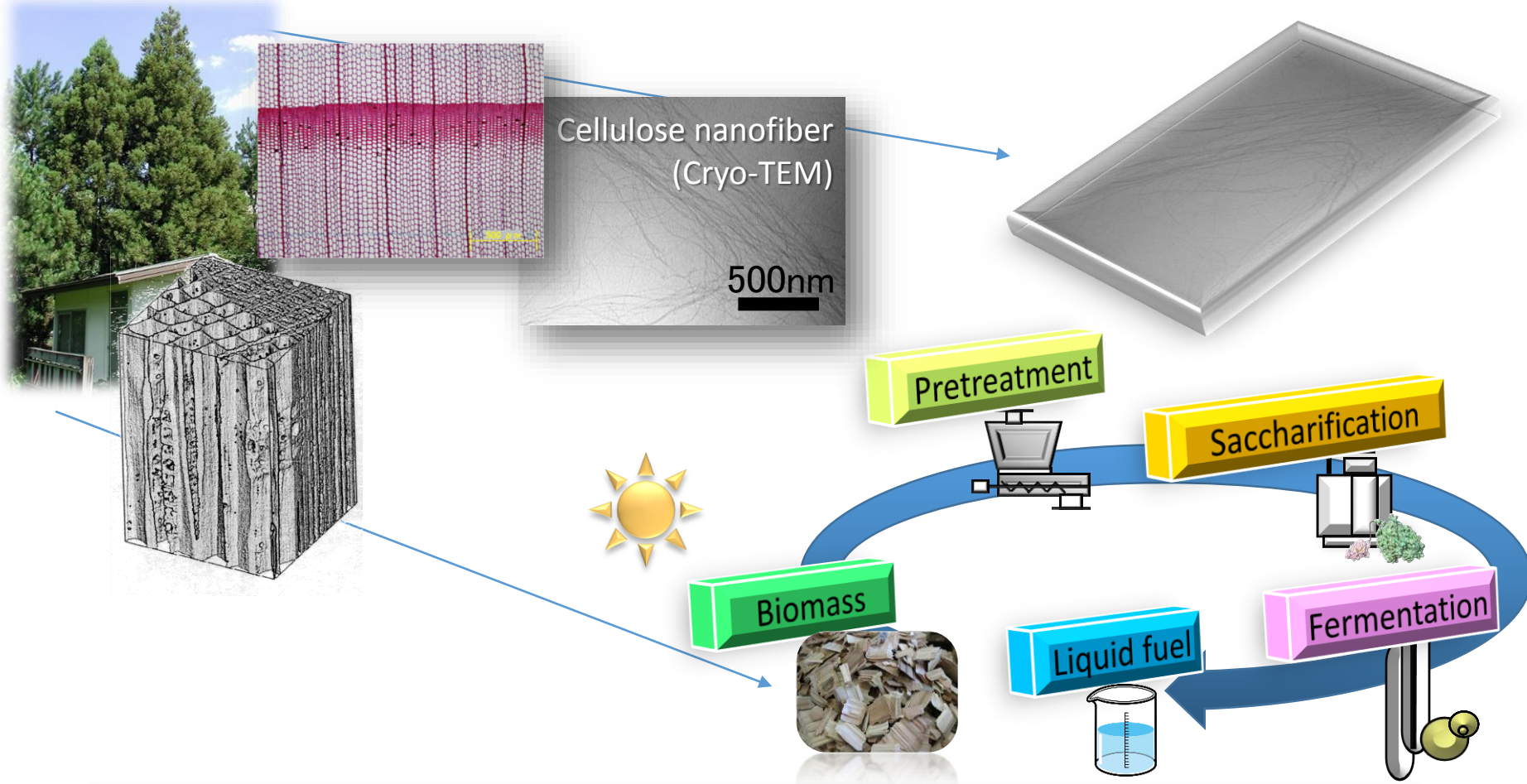


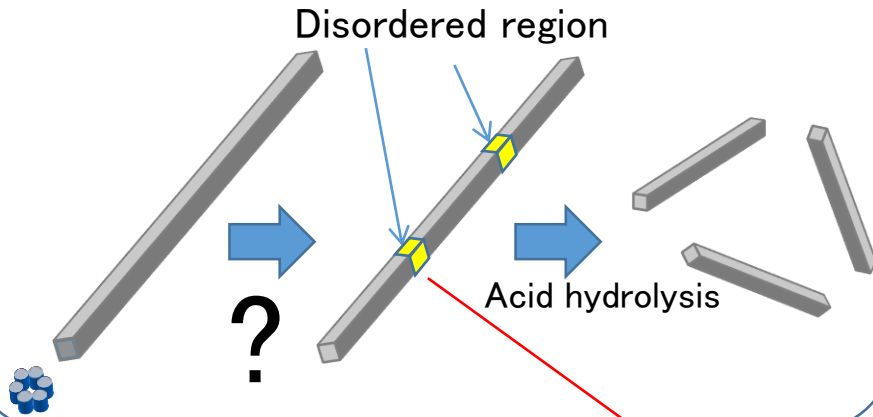
# Background



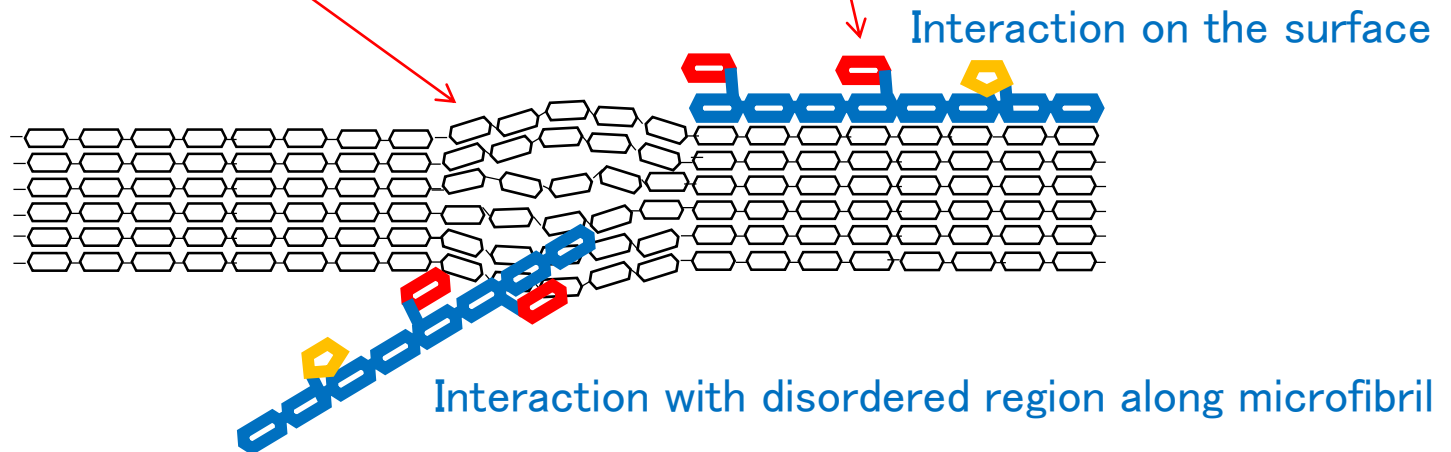
It is essential to understand the plant cell wall structure for developing functional material or better energy conversion.

# Structural analysis of biopolymers in plant cell wall

## ① Longitudinal suprastructure of cellulose microfibril



## ② Chemical and structural diversity of hemicellulose



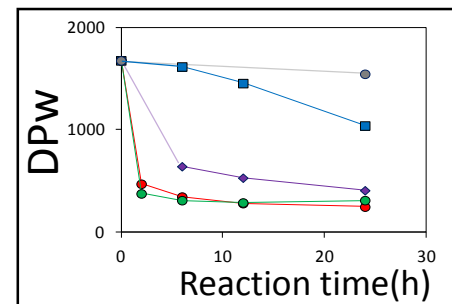
## ③ Interaction between cellulose and hemicellulose

# Approach for interaction of cellulose with hemicellulose

## Relationships between cellulose DP and hemicellulose contents

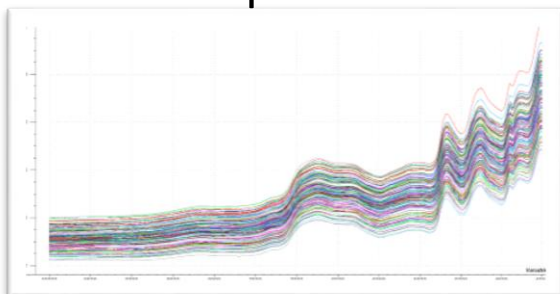
	Glucose	Xylose	Arabinose	Mannose	Galactose	Fructose
Original	44.77	15.67	0.51	0.71	1.07	0.06
Sample 1	61.42	2.27	0.03	0.22	0.00	0.07
Sample 2	53.53	14.73	0.46	0.15	1.04	0.07
Sample 3	54.54	13.89	0.44	0.12	0.90	0.08
Sample 4	60.56	14.28	0.46	0.12	0.92	0.07
Sample 5	66.27	0.40	0.02	0.04	0.00	0.08
Sample 6	67.24	13.19	0.42	0.15	0.54	0.06
Sample 7	48.35	0.04	0.02	0.00	0.00	0.06
Sample 8	65.55	0.14	0.01	0.07	0.00	0.09

Chemical analysis



Degree of polymerization

Spectra



Multivariate analysis

Interaction of longitudinal defects along cellulose microfibril and hemicellulose

Linkage pattern between cellulose and hemicellulose