

Dimensions of Cellulose Nano Whiskers Prepared Under Different Sulfuric Acid Hydrolysis Conditions

Cellulose source	% H ₂ SO ₄ conc.	Time, min	T, °C	Acid/cellulose ml/g	Dimension, nm
SW pulp	64	10	70	8.75	~ 200 × 5
	60	50	< 70 °C	8.75	~ 200 × 5
	65	10	70	10	185 ± 75 × ~ 3.5
	65	60	45	8.75	185 ± 75 × ~ 3.5
HW pulp	64	45	45	17.5	100-250 × 5-15
	64	25	45	8.75	147 ± 7 × 3-5
	64	25	45	8.75	141 ± 6 × 5.0 ± 0.3
	64	45	45	8.75	120 ± 5 × 4.9 ± 0.3
	64	45	45	17.5	105 ± 4 × 4.5 ± 0.3
Cotton	64	120	45	8.75	~ 200 × 5
	64	60	45	8.75	115 ± 10 × ~ 7
	64	45	45	17.5	176 ± 21 × 13 ± 3
	64	120	60	8.33	70-150 × 10-20
	65	60	45	8.75	100-150 × 5-10
Sisal Flax	65	15	60	16.2	~ 250 × 4
	64	240	45	8.33	327 ± 108 × 21 ± 7
Wheat straw	65	60	25	34.3	150-300 × ~ 5
MCC	63.5	130.3	44	10	200-400 × <10
	64	300	45	8.75	41-320 × < 100
	64	180	45	17.5	60-120 × 8-10
	64	-	45	8.75	100-225 × 10-15

