

Production and properties of nanocrystalline cellulose

suspensions and films

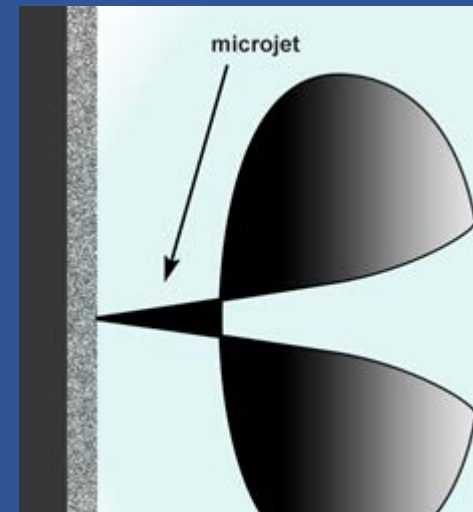
Sebestyén Nagy, Emília Csiszár



The effect of low frequency ultrasound on the properties of CNC suspensions and films prepared from the suspensions.



Horn-type sonicator



Cavitation

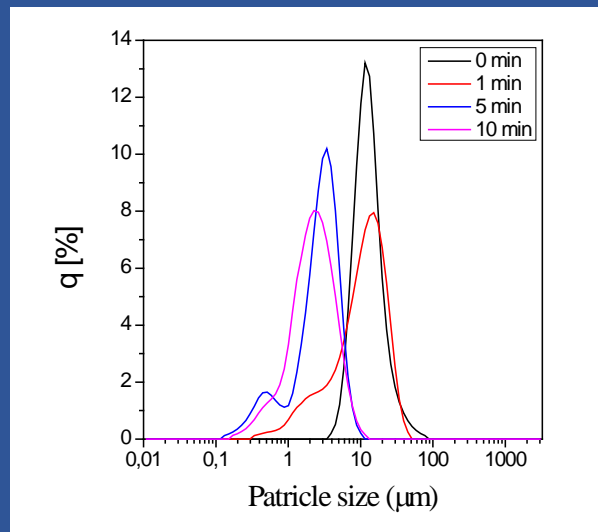
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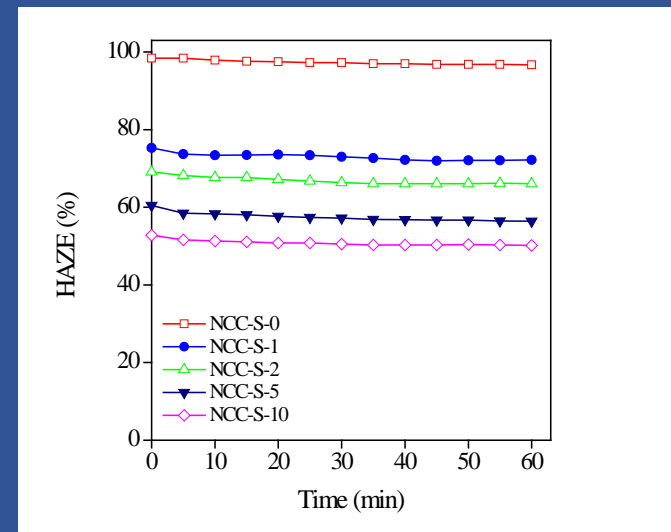
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Properties of CNC suspensions



Particle size distribution
(based on laser diffraction)



Haze-index
(transmitted scattering light)

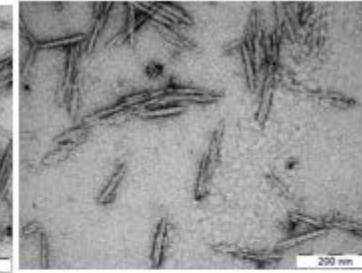
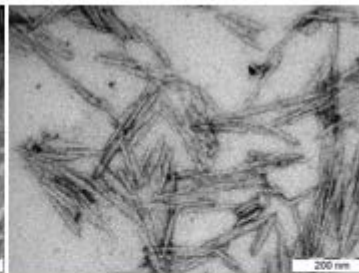
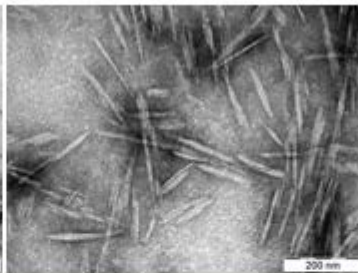
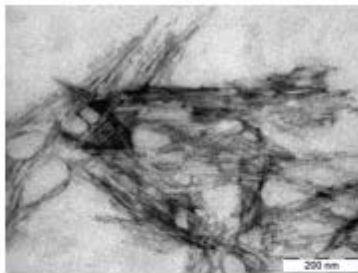
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Properties of CNC suspensions



Time of sonication (min):	0	1	5	10
Average length (nm):	-	171	178	118
Average width (nm):	-	17	21	13

Transmission electronmicroscope images

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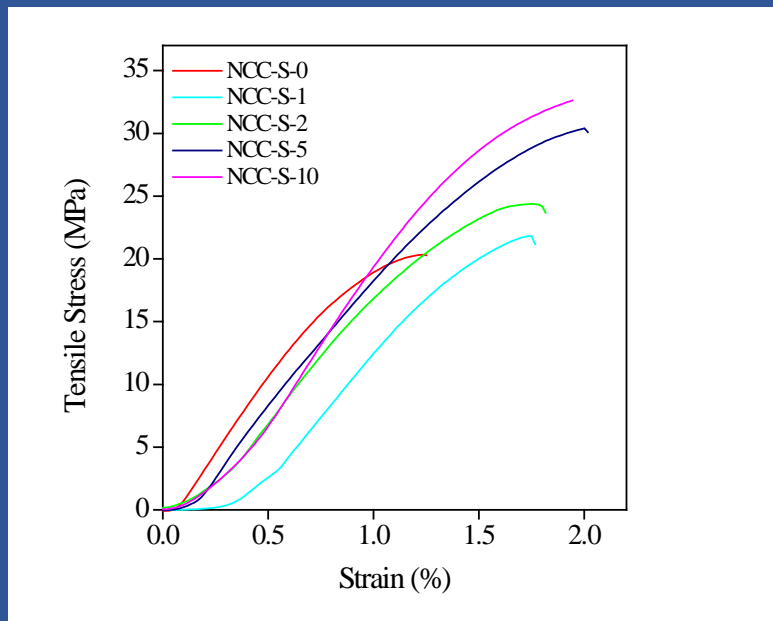
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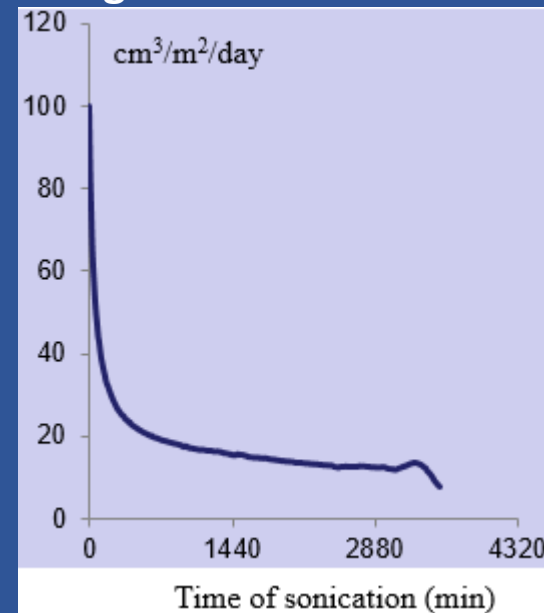


Properties of CNC films

<i>Time of sonication (min):</i>	0	1	2	5	10
<i>Haze (%)</i> :	73	29	27	26	22
<i>Tensile strength (MPa)</i> :	21	23	24	29	33



Oxygen transmission rate



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