

Analytical methods for the investigation of the water – biodegradable films interaction

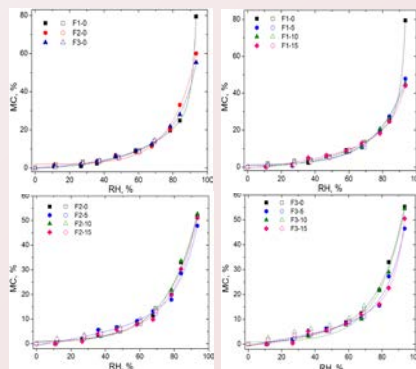
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The composition and sample code for the studied samples

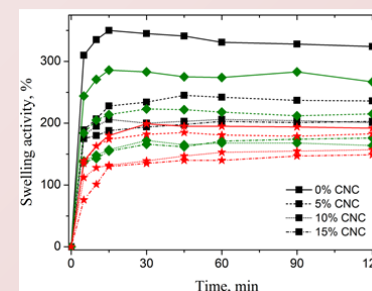
Sample code	PVA (%)	S (%)	CNC(%)*
F1-0	90	10	0
F1-5	90	10	5
F1-10	90	10	10
F1-15	90	10	15
F2-0	75	25	0
F2-5	75	25	5
F2-10	75	25	10
F2-15	75	25	15
F3-0	50	50	0
F3-5	50	50	5
F3-10	50	50	10
F3-15	50	50	15

*percentage of CNC from the 100% polymeric blend

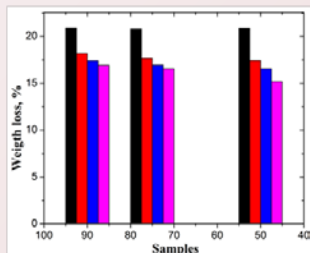
Water vapor sorption



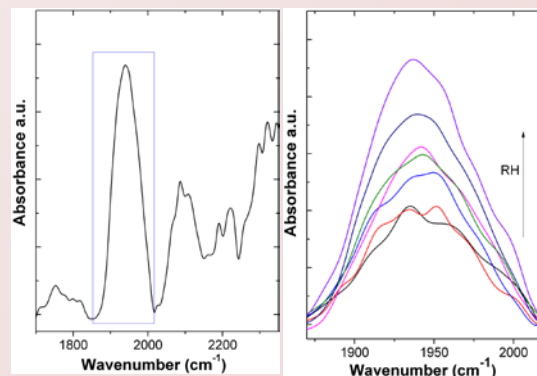
Water adsorption property



Water resistance



NIR spectroscopy



Contact angle measurements

Sample	CA _{EG}	CA _W	γ_s^{TOT} (mN/m)	γ_s^{LW} (mN/m)	γ_s^{AB} (mN/m)
F1-0	33,3	66	40,07	23,3	16,76
F1-5	34	65,2	39,92	21,90	18,02
F1-10	53,5	57,9	44,92	3,77	41,15
F1-15	36,2	60,7	40,89	15,91	24,98
F2-0	28,6	62,4	38,88	3,95	35,93
F2-5	48,8	63,4	37,89	9,46	28,43
F2-10	34,9	62,2	40,48	18,19	22,29
F2-15	33,2	72,8	41,24	31,86	9,39
F3-0	36,7	64,8	39,12	19,45	19,667
F3-5	32	84,6	53,22	51,91	1,32
F3-10	37,2	69,5	38,34	24,20	14,13
F3-15	42,1	60,1	40,61	11,48	29,13
PVA	37	50,7	48,81	8,25	40,56
Starch	32,8	40,6	58,93	5,29	53,70
CNC	31,4	33,7	66,57	3,51	63,06