Supplementary Materials

Soybean oil-based biopolymers induced by nonthermal plasma to enhance the dyeing of para-aramids with a cationic dye

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Table S1. Characteristic FTIR bands of materials and the references.

FTIR peak (cm^{-1})	Functional group	Refs
AESO		
3344	–OH stretch (broad)	[1, 2]
2922	$–CH_2$ asymmetric stretch	[1, 4]
2852	$–CH_3$ symmetric stretch	[1, 4]
1462	$–CH_2$ antisymmetric deformation	[1]
1742	–C=O triglyceride carbonyl stretch	[4]
1723	acrylate esters	[7]
1638	$–CH=CH_2$ stretch of vinyl	[4, 8]
1619	C=C of acrylate group	[8, 9]
986	$–CH_2=CH(CO)–O–$ out of plane bending	[8, 10]
1406	acrylate $CH_2=CH$ scissoring of terminal alkene	[4]
1190	C–O stretch of esters	[4]
1250-1270	C–O–C stretch of oxirane	[4, 10]
822	oxirane vibration	[2, 9]
810	–C=C– rocking of acrylates	[1, 9]
Para-aramid		
3313	–N–H stretch	[13]
1638	amide I C=O stretch	[13]
1538	–N–H deformation	[13]
1513	amide II	[14]
1305	C–N stretch of amide III	[14]
1017, 820	C–H of para-aromatic rings	[14]
Acrylic acid		
1695	C=O stretch	[3]
1637	C=C stretch	[3, 5]
1432	CH_2 bending	[6]
984	$=CH_2$ out-of-plane bending	[5]
1617	C=C stretch	[6]
1297	C–C–O vibration	[6]
819	CH_2 out-of-plane bending	[6]
Soybean oil		
3009	=C–H stretch of aliphatic alkenes	[11, 12]
2922	$–CH_2$ asymmetric stretch	[11, 12]
2852	$–CH_3$ symmetric stretch	[11, 12]
1742	–C=O triglycerides carbonyl stretch	[11, 12]
1462	$–CH_2$ antisymmetric deformation	[11, 12]
1160	C–O stretch of esters	[11, 12]

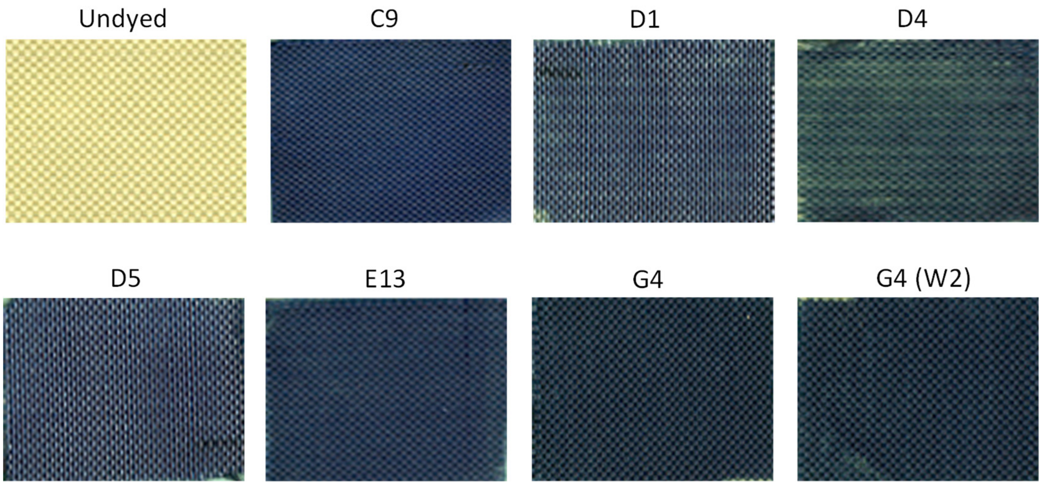

Figure S1. Scanned images of dyed samples in contrast with original undyed fabric (labels correspond to the sample numbers in Tables 3-5 and Figure 8; G4 (W2) indicates sample G4 after 2nd detergent wash)

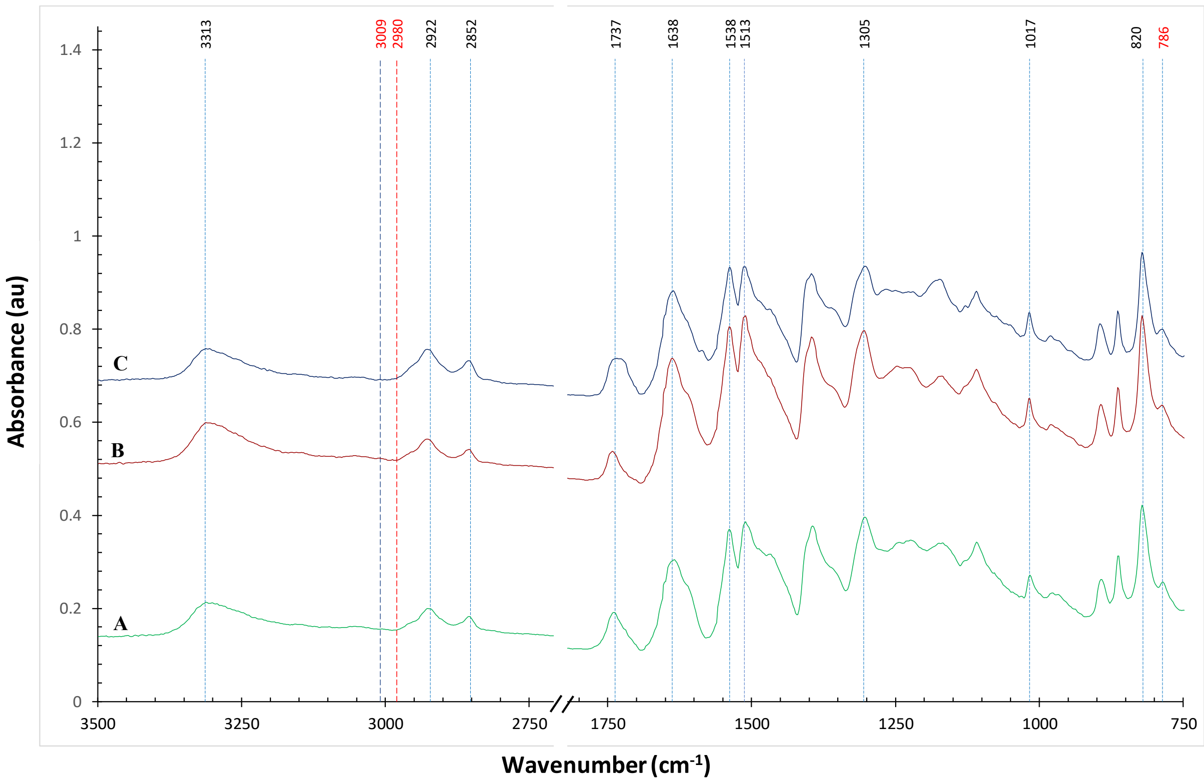

Figure S2. FTIR spectra of A) para-aramid sample after soaking in AA/Soy and subsequent NTP treatment; B) dyed para-aramid sample pretreated with AA/Soy with subsequent NTP treatment; C) dyed para-aramid sample pretreated with AESO with subsequent NTP treatment.

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