

Supplementary information

A “wave-riding” biocatalysis: all-enzyme system toward genuine-green and flexible manufacture of machine-washable dyed wool fabrics

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1. Fig. S1 to S5

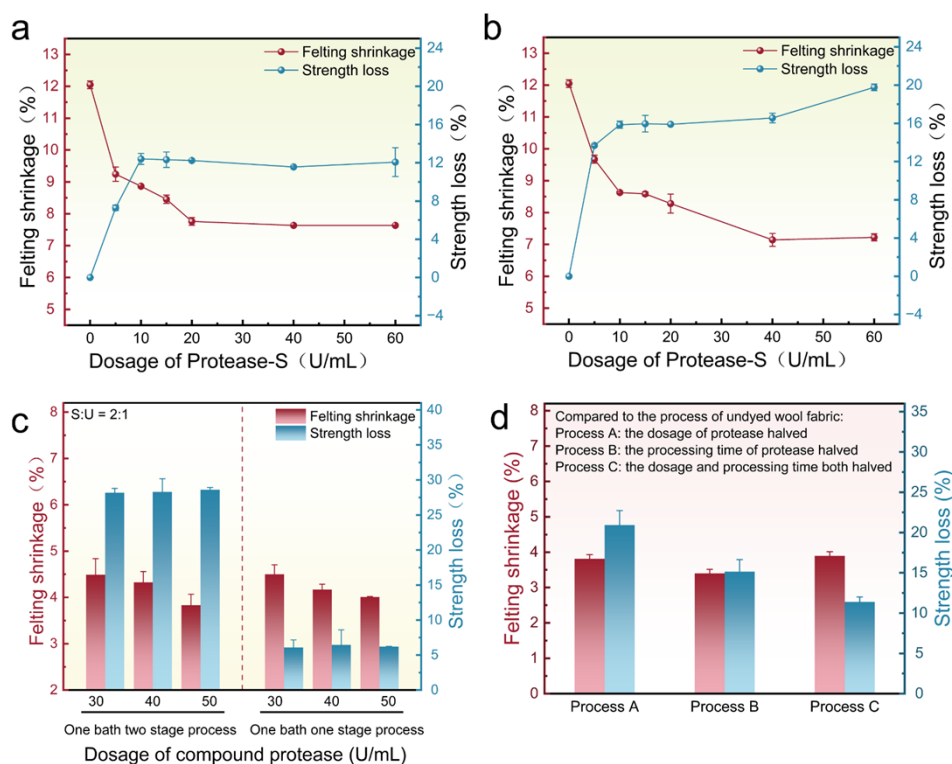


Fig. S1 Optimization of the fully enzymatic method for anti-felt shrinkage of dyed wool fabrics. (a, b) The effect of S and U dosages on the felting property and strength loss of wool fabrics; (c) The adjustment of the dosage of compound protease system in one bath process on wool fabrics' felting shrinkage and strength loss; (d) The optimization of the anti-felting process on dyed wool fabric.

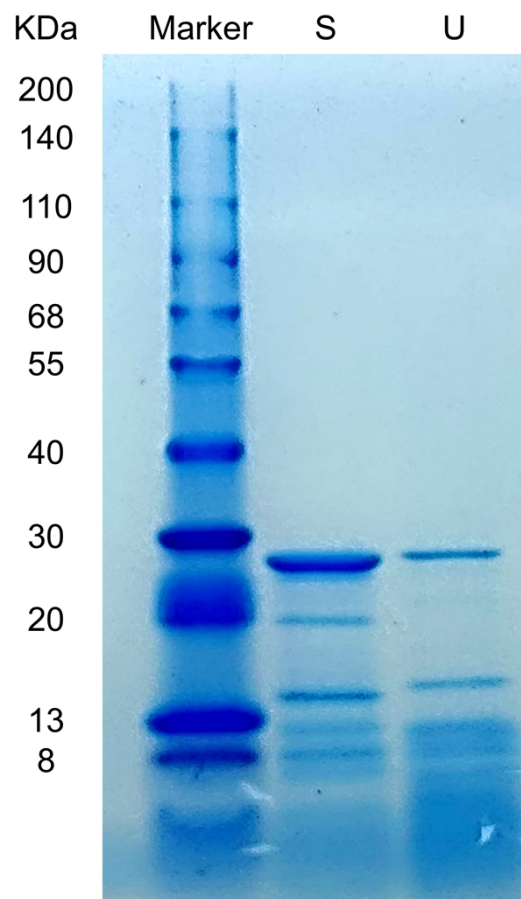


Fig. S2 Molecular weight of S and U.

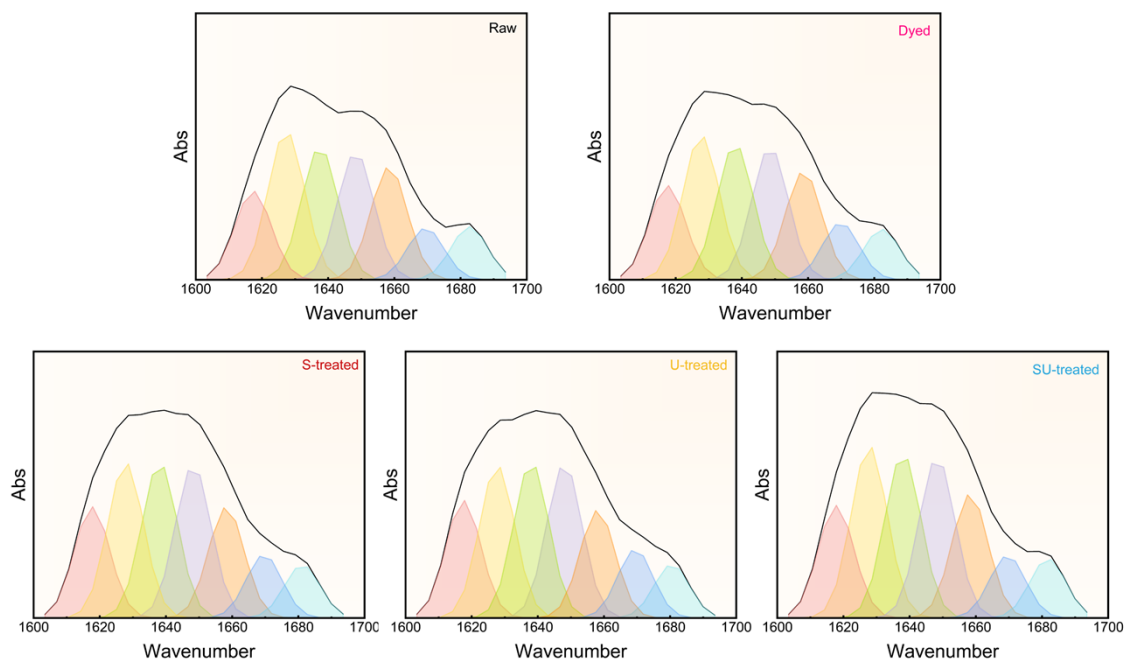


Fig. S3 Peak fitting spectrum of amide I of FTIR from different samples.

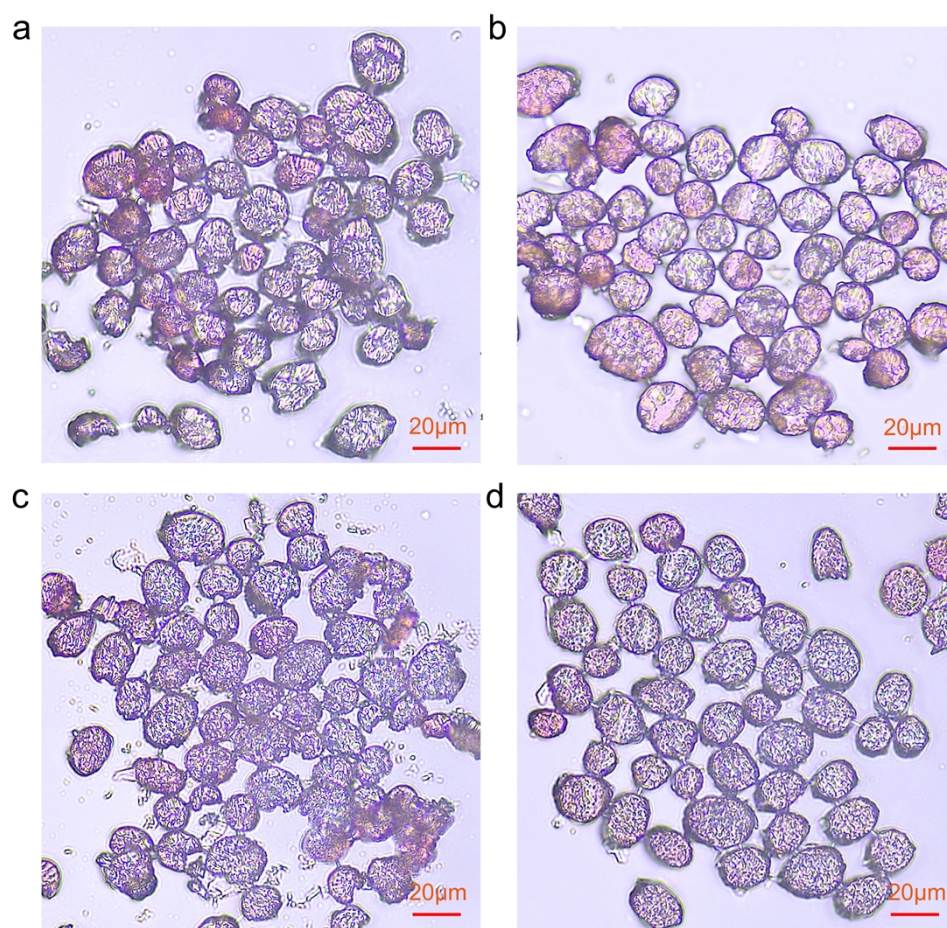


Fig. S4 The cross-sectional images of wool fabrics treated with different processes. (a) Dyed wool; (b) S-treated; (c) U-treated; (d) SU-treated.

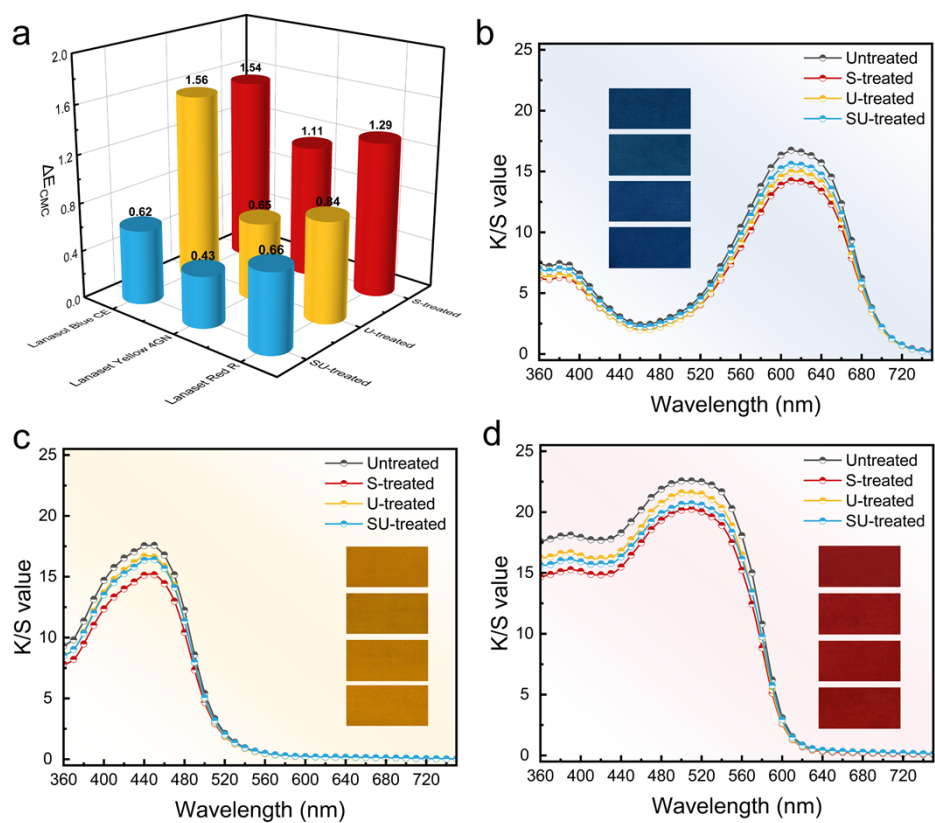


Fig. S5 (a) The chromatic aberration between untreated dyed wool fabrics and protease-treated samples; (b, c, d) The K/S value curves of the other three dyed wool fabrics and treated samples.

2. Table. S1

Table. S1 The effects of enzyme treatment on the color fastness of the dyed wool fabrics treated with various dyes.						
Dyes	Methods	Rubbing fastness		Washing fastness (color staining)		Washing fastness
		Dry	Wet	Wool	Cotton	(color changing)
Lanasol Blue CE	Untreated	5	4-5	5	5	5
	S-treated	4	3	5	5	5
	U-treated	4-5	3	5	5	5
	SU-treated	4-5	3	5	5	5
Lanaset Yellow 4GN	Untreated	5	4-5	5	5	5
	S-treated	4-5	3	5	5	5
	U-treated	4-5	4	5	5	5
	SU-treated	4-5	3-4	5	5	5
Lanaset Red G	Untreated	5	4-5	5	5	5
	S-treated	4-5	3	5	5	5
	U-treated	4-5	3	5	5	5
	SU-treated	4-5	4	5	5	5