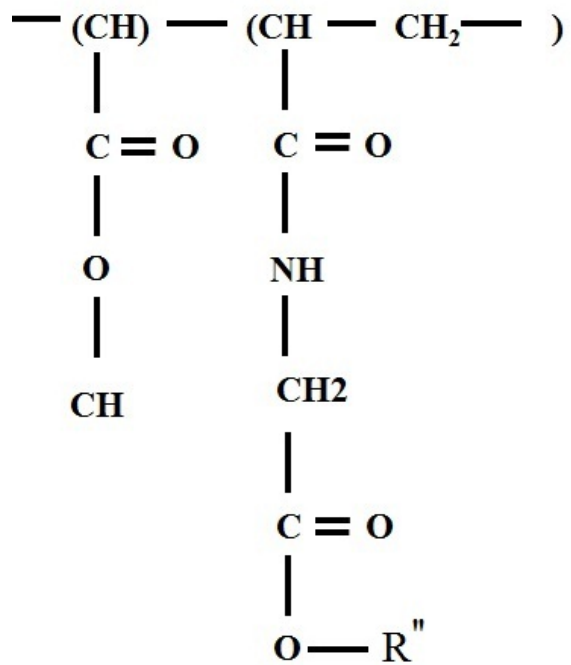


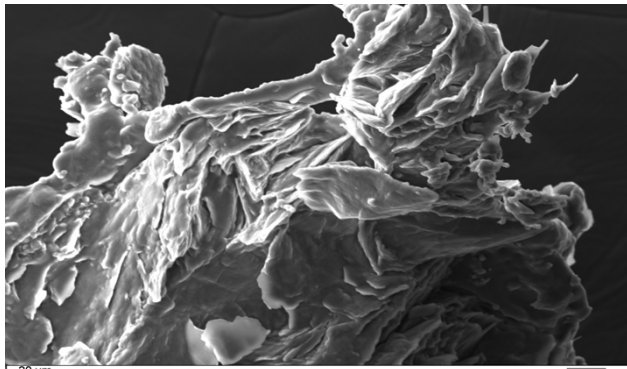
Supporting Scheme 1. Flow scheme showing the preparation of copolymer from collagen waste and its application in chrome absorption process.

**Supporting Table 1. Characteristics of grafted copolymer**

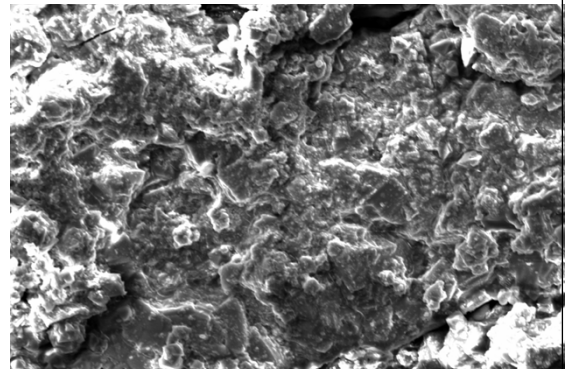
<b>Characteristics of NPD</b>	<b>Values</b>
pH	5.0
Particle size	1366 nm
Relative viscosity (CP)	0.85
Molecular weight of the polymer ( $M_n$ )	$6.00 \times 10^5$
CH : PVA	1:1.6
Polydispersity index (z-average mean of the particle size distribution)	1.00
% Solid level	19.20



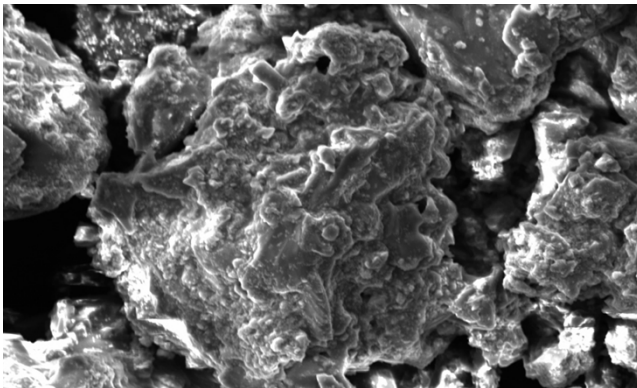
**Supporting Figure 1.** Structure of grafted copolymer prepared from Collagen Hydrolysate (CH) and Poly Vinyl Alcohol (PVA = R'')



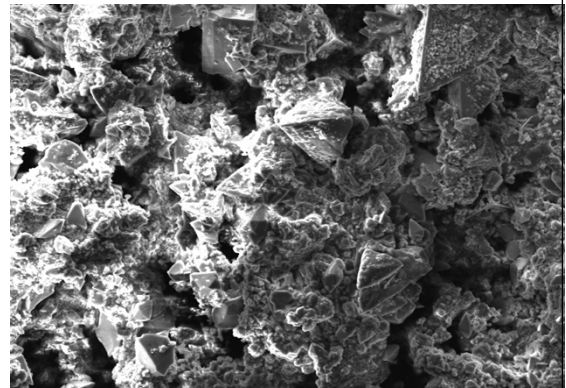
a) Co-Polymer



b) 2%

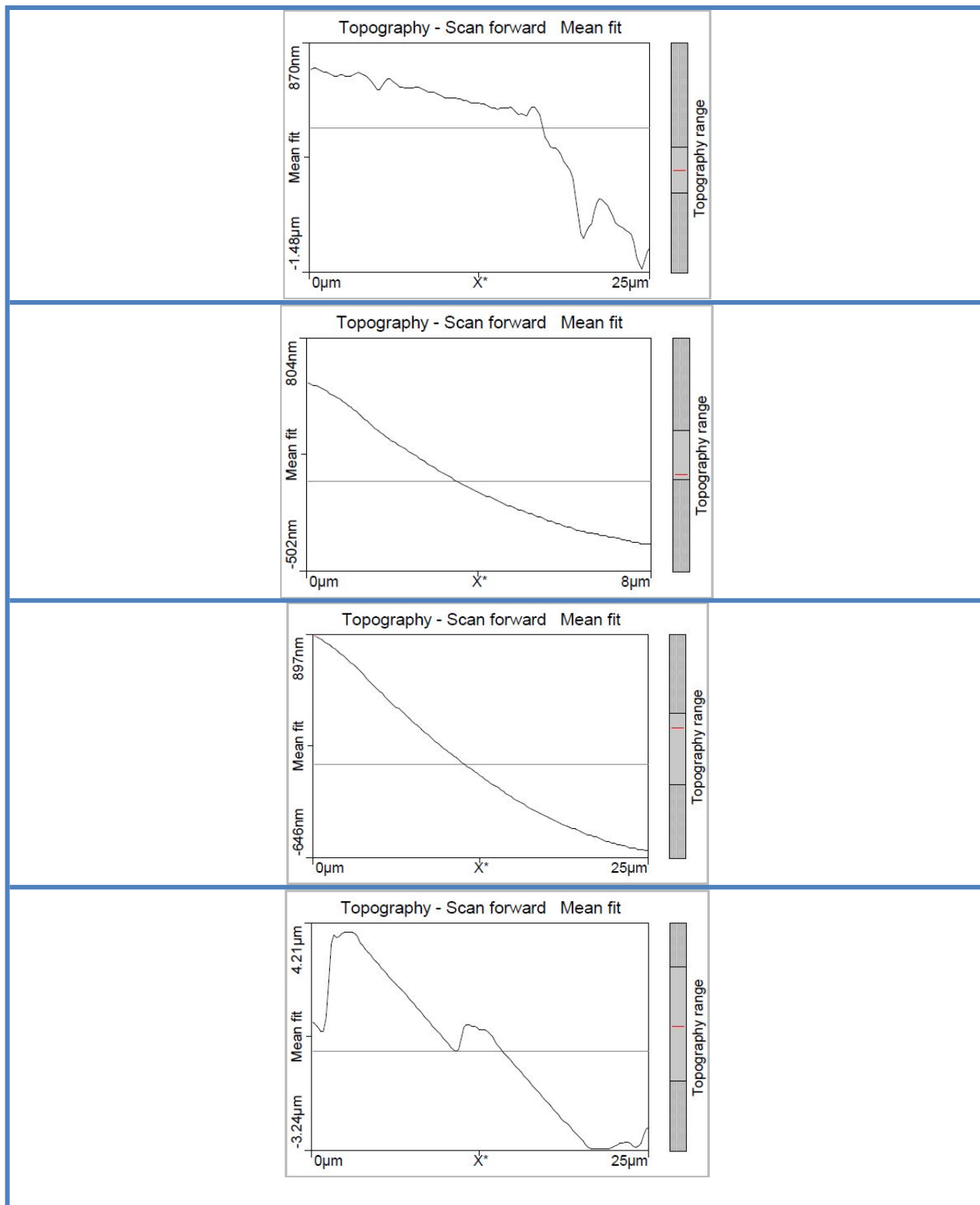


c) 4%



d) 6%

**Supporting Figure 2.** SEM micrographs a) Co-Polymer, b) 2% copolymer treated sample, c) 4% copolymer treated sample, d) 6 % copolymer treated sample



**Supporting Figure 3.** Mean fit of topography of experimental sample using AFM. (t-b): Pure co-polymer sampe, 2% co-polymer treated in Cr (III) absorption, 4% co-polymer treated in Cr (III) absorption, 6% co-polymer treated in Cr (III) absorption.