

Bioactive Carboxymethyl Starch-Based Hydrogels Decorated with CuO Nanoparticles: Antioxidant and Antimicrobial Properties and Accelerated Wound Healing In Vivo

Zahra Abdollahi ¹, Ehsan Nazarzadeh Zare ^{1,*}, Fatemeh Salimi ², Iran Goudarzi ², Franklin R. Tay ³, and Pooyan Makvandi ^{4,*}

- ¹ School of Chemistry, Damghan University, Damghan 36716-41167, Iran; zahra.yalda.abdollahi@gmail.com
² School of Biology, Damghan University, Damghan, 36716-41167, Iran; f.salimi@du.ac.ir (F.S.); irangoudarzi@du.ac.ir (I.G.)
³ The Graduate School, Augusta University, Augusta, GA 30912, USA; tayfranklin7@gmail.com
⁴ Istituto Italiano di Tecnologia, Centre for Materials Interface, viale Rinaldo Piaggio 34, 56025 Pontedera, Pisa, Italy
* Correspondence: ehsan.nazarzadehzare@gmail.com; e.nazarzadeh@du.ac.ir; Tel.: +982335220095 (E.N.Z.); pooyanmakvandi@gmail.com (P.M.)

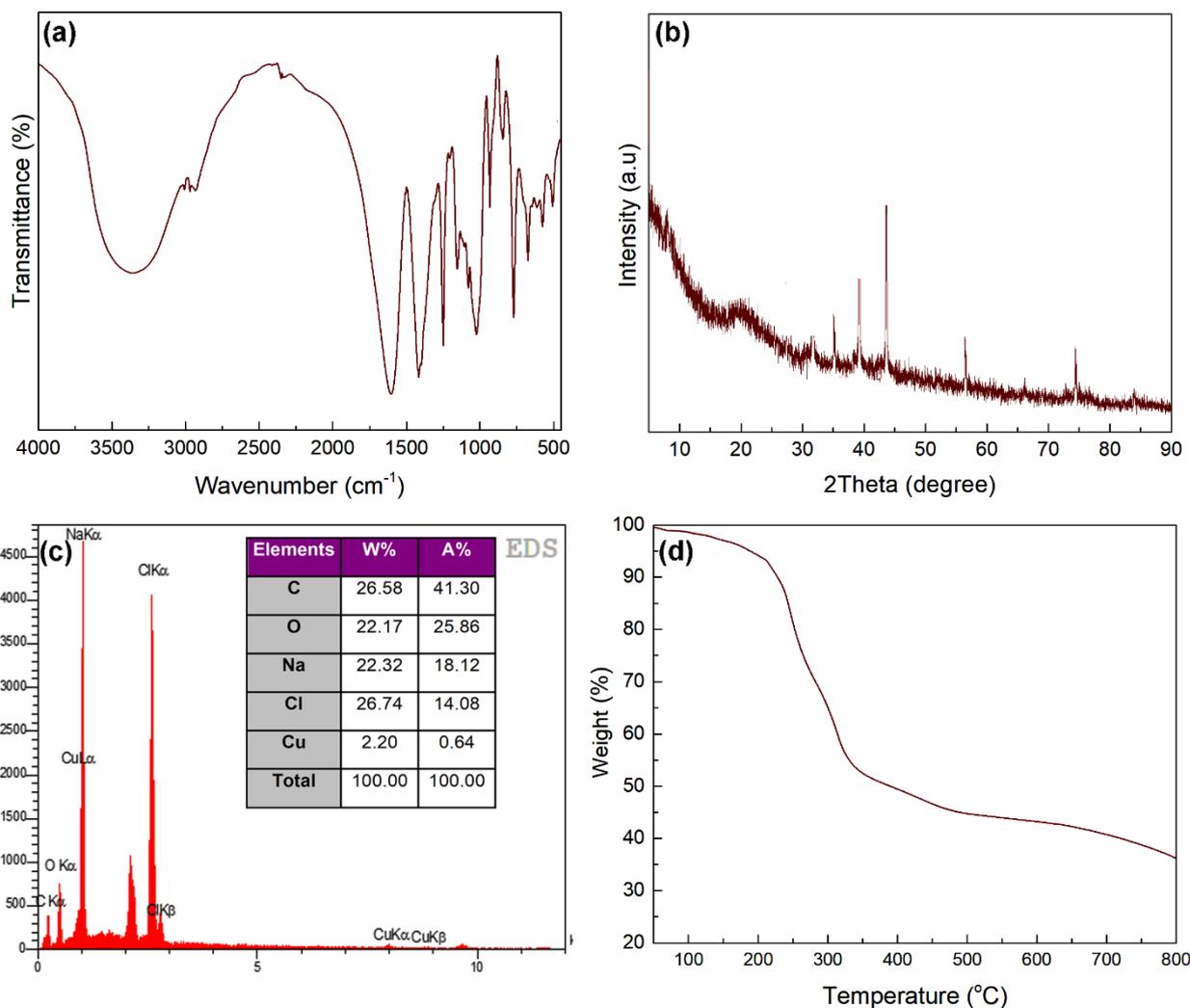


Figure S1. FTIR spectrum (a), XRD pattern (b), EDS spectrum (c), and TGA curve (d) of the CMS@4%CuO nanocomposite hydrogel.

Table S1. UV-vis data of antioxidant activities of CMS, CuO nanoparticles, CMS@2%CuO, and CMS@4%CuO nanocomposite hydrogels in methanolic DPPH· solution. A_b , the absorbance of DPPH solution at 517 nm; A_s , the absorbance of each sample in DPPH solution at 517 nm.

Samples	A_b	A_s	DPPH %
CMS	0.450	0.283	37
CuO nanoparticles	0.450	0.112	75
CMS@2%CuO	0.450	0.090	80
CMS@4%CuO	0.450	0.081	82