

Novel mucoadhesive carriers based on alginate-acrylamide hydrogels for drug delivery

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Acrylamide (AAm) and methylene-bisacrylamide (MBA) (Acros Organics), ammonium persulfate (APS) (Applichem), tetramethylethylenediamine (TEMED), *N,N*-diethylacrylamide (DEAAm) (Sigma Aldrich) all analytical grade; high viscosity Na-Alg (Alfa Aesar) and lidocaine hydrochloride (LDC) (Spectrum, USA) were used without further purification. Sodium chloride, sodium hydroxide, iron (II) sulfate heptahydrate ($\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$), calcium chloride (CaCl_2) and hydrochloric acid, reagent grade (LabTech, Russia). All solutions were prepared in bidistilled water.

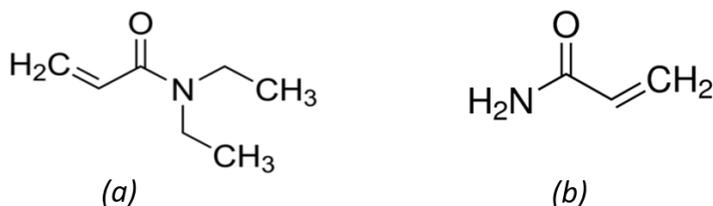


Figure S1 Structure of monomers: DEAAm – (a) and AAm – (b).

IR spectra of the gels were recorded on a Perkin Elmer Spectrum One instrument (Perkin Elmer, United States) equipped with an universal ATR attachment with a single reflection from the surface of a Diamant Zn – Se crystal.

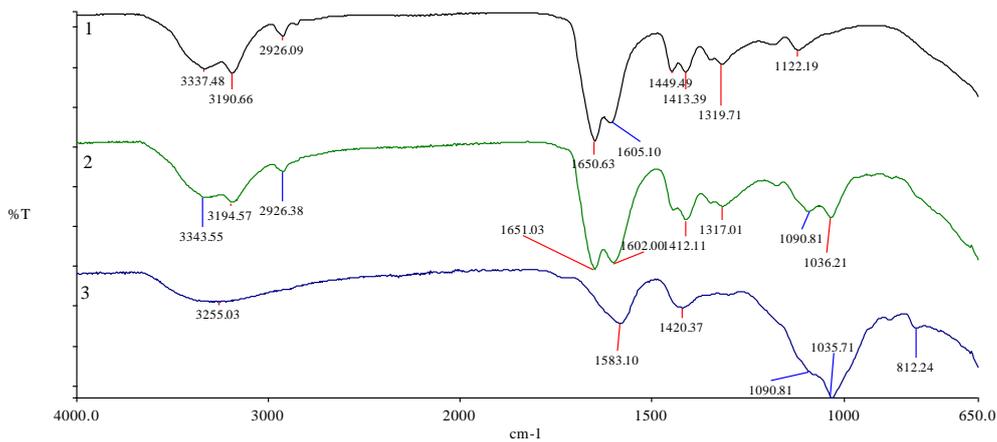


Figure S2 IR-spectra of the gels: 1 – PAAm; 2 - PAAm-Na-Alg mixed gels crosslinked with Fe²⁺; 3- Na-Alg.

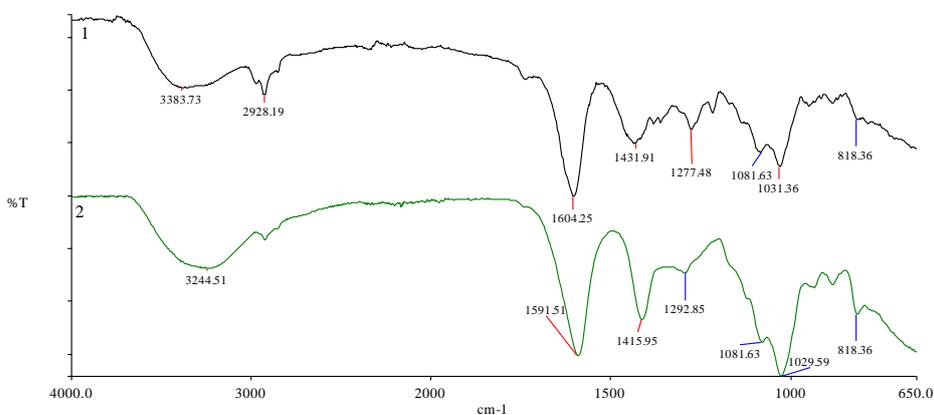


Figure S3 IR-spectra of the gels: 1 - differential spectra of mixed gel (PAAm-Na-Alg gel – PAAm gel); 2 - Na-Alg gels.

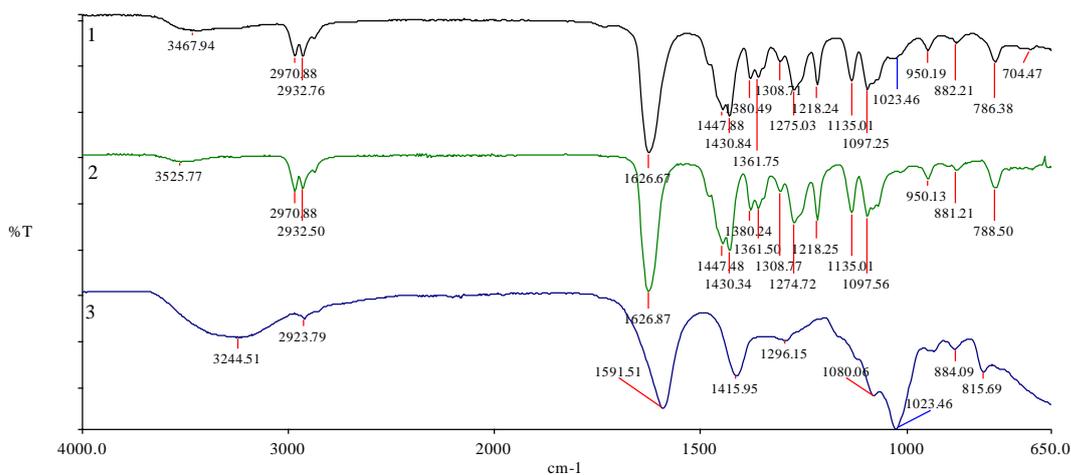


Figure S4 IR-spectra of the gels: (1) – PDEAAm; (2) – PDEAAm/Na-Alg mixed gels crosslinked with Ca²⁺; 3 - Na-Alg.

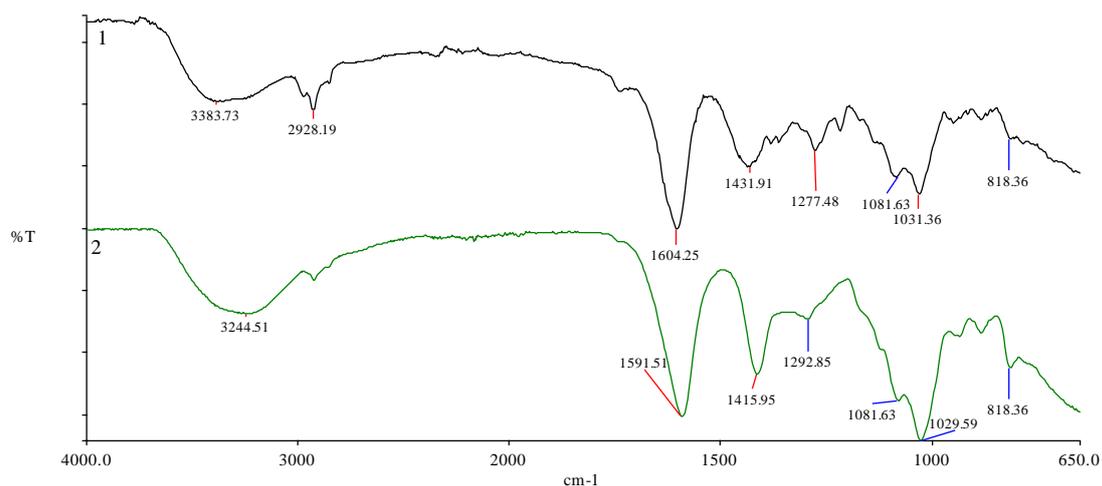


Figure S5 IR-spectra of the gels: 1 - differential spectra of mixed gel (DEAAm Na-Alg – DEAAm) ; 2 - Na-Alg gels.

Electronic photographs of lyophilized gels were taken on an electron microscope TESCAN CLARA (TESCAN, Czech Republic) using an intra-chamber secondary electron detector (E-T).