

Simulated annealing molecular dynamics and quantum chemistry shows that nanoplastics – degradation products of plastic wastes up to 100 nm – have a profound effect on the structure of peptides, and thereby on proteins as well. Whilst polyethylene stabilizes helical structures, nylon 6,6 unfolds the peptide into an open chain form. These results indicate that proteins can be altered or denaturated in the presence of these pollutants in different ways, depending on the composition of the plastic.