AMYLOID INHIBITORS: SYNTHETIC FLAVONOIDS INCORPORATED IN ELECTROSPUN BIODEGRADABLE NANOFIBERS

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Amyloid fibrils, insoluble protein aggregates, accumulate in variety of organs, including the liver, kidneys, and brain. They have been related to numerous progressive degenerative diseases, such as Alzheimer's, Parkinson, Huntington disease, type II diabetes, primary and secondary amyloidosis. Flavonoids – a broad family of polyphenolic compounds, have been identified as potent and promising fibrillation inhibitors. The presented research deals with the synthesis and anti-fibrillation activity evaluation of novel flavonoids. The inhibition potency of our compounds was tested on apoSOD and apoG93A proteins. Hydroxyl groups facilitating quick formation of a quinone structure, the presence of nitro and halogen substituents in the A ring of the flavonoids as well as the open-chain compounds are the structural features that create potent inhibitors.
Flavonoid derivatives are used in combination with electrospun glycopolymer nanofibers in order to achieve a synergestic effect and create a drug delivery system for the lypophillic compounds.