The study of self-assembly governed by the formation of donor-acceptor complexes

This work deals with the preparation of 2-[(3-carboxyphenyl)ethynyl]benzoic acid, which a represents simplified model of monodisperse (*p*-phenylen)ethynylene oligomers, functionalized by carboxylic groups. Such a dicarboxylic acid was synthesized via Sonogashira coupling and then taken over to a series of diesters with corresponding alcohols.

The theoretical part contains concise introduction to nanoscience, self assembly and donor – acceptor (D-A) interactions. The most frequently used synthetic reactions – Sonogashira coupling and Steglich esterification are described.

The experimental part deals with the preparation of dimeric dicarboxylic acid and corresponding esters with alcohols containing electronacceptor functional groups. The synthetized compounds were characterized by spectroscopic methods (NMR, MS, IR, UV/VIS) and elemental composition established by HR MS. Melting points were measured for crystalline compounds.