

STYRYLCYANINES BASED ON PROTOCATECHUIC ALDEHYDE

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Catechols are interesting and promising research objects in biomedical, organic, and inorganic chemistry. Their derivatives show biological activity as dyes, complexing agents, etc. We have found that catechol and its halide derivatives, protocatechuic aldehyde react with zirconium and hafnium phthalocyaninate dichloride by ligand exchange reactions to form the corresponding derivatives [1,2]. This work aimed to investigate the interaction between protocatechuic aldehyde and activated indolenines of the different structures under the conditions of the Knevenagel condensation reaction (Fig. 1). These compounds are chromophores and can be used in coordination and analytical chemistry.

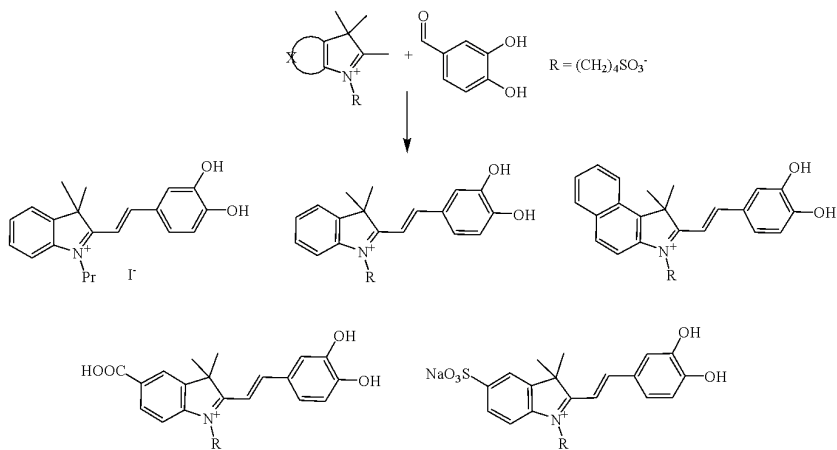


Fig. 1. Scheme of synthesis of styrylcyanine dyes with o-dihydroxy chelating fragment

Using base catalysis, five styrylcyanine dyes of the different structures were obtained with 50–75 % yields. Dyes containing a sulfo- or carboxyl group in the indolenine nucleus have been found to be water-soluble. Their absorbance maxima in solution are in the range of 400–450 nm. They also have an o-dihydroxy chelating fragment, which makes them promising chromophore ligands in complexation reactions.

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