AMINE DERIVATIVES OF CHALCONES, AZACHALCONES AND THEIR SALTS AS COMPONENT IN PHOTOINITIATING SYSTEMS

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Process of photoinitiated polymerization through an intermolecular electron transfer mechanism has been intensively investigated for many years. This process has numerous practical applications, and for this reason, different groups of copounds are used as both light absorbers and co-initiators.

Chalcones are aromatic ketones that exhibit strong antioxidant properties. They are used in medicine and pharmacology because they show antibacterial and anti-inflammatory properties depending on the type, number and position of substituents on aromatic rings.

Here, the synthesis of several amine derivatives of chalcones, azachalcones and their salts as well as their application as components of photoinitiating systems for radical polymerization of trimethylolpropane triacrylate (TMPTA) are presented. The obtained dyes constituted as light absorber whereas *p*-phenyl-N-methoxypyridinium tetrafluoroborate, phenylthioacetic acid, ethyl 4-(N,N-dimethylamino)benzoate and tetramethylammonium phenyltriethylborate were used as electron donors (co-initiators).

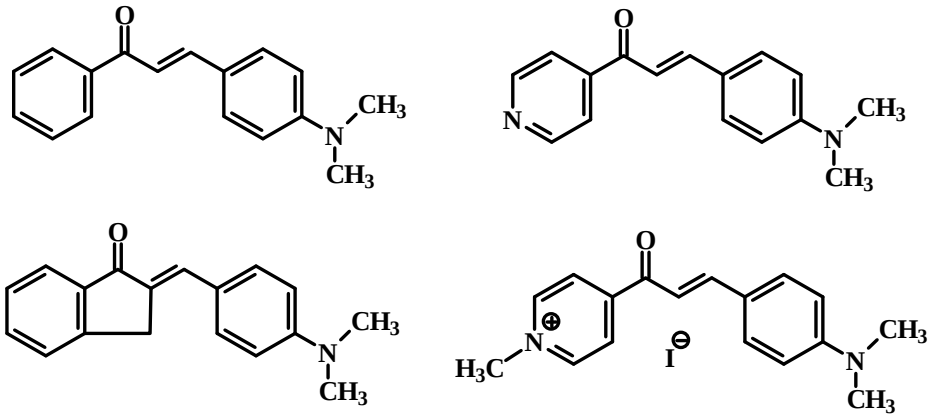

Fig 1. Synthesized compounds used as photoinitiators for radical polymerization of acrylates (chalcones, azachalcones and their salts typical structures).

The influence of the co-initiator structure, dye concentration, wavelength and intensity of the absorbed light on the polymerization rate was investigated. It was found that these dyes show good photoinitiating properties only in systems with borate salts. The efficiency of such photoinitiating systems is similar to those used commercially.