

*Obtaining of materials based on natural chromophores and biopolymers with optoelectronic properties*

*Abstract*

In the recent years, the interest in the environment has greatly increased and a new branch of chemistry has been developed, namely "green chemistry". Today, more and more studies are being carried out to try to replace polluting materials with eco-friendly". The present work based on this idea used the most widespread biopolymer, namely DNA – and four spices (turmeric, sweet paprika, black pepper and curry leaves), in the desire to obtain all-bio materials. The elements of originality that are distinguished in this PhD thesis are as follows: (i) doping the biopolymer both in a simple state and in complex combination with CTMA with coloured natural extracts; (ii) obtaining new materials with second-order non-linear optical properties; (iii) obtaining all-bio materials with much higher optical damage threshold values than those using synthetic chromophores; (iv) obtaining all-bio materials with cubic susceptibility values higher than the values recorded for DR1 and PMMA-based materials. In view of all the results obtained, it can be concluded that, although for the moment, the all-bio materials based on DNA and natural extracts from spices are difficult to obtain and reproduce, they have spectral and optically non-linear properties that can make them useful for various applications, leaving the hope that in the future these materials could replace synthetic materials.