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**A combination of interdisciplinary analytical tools for evaluation of multi-layered coatings on medical grade stainless steel for biomedical applications**

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**Abstract**

In this comprehensive study several analytical techniques were used in order to evaluate multi-layered biomedical surface coatings composed of a drug (diclofenac) and a polymer (chitosan). Such a thorough examination is of paramount importance in order to assure safety and prove efficiency of potential biomedical materials already at the *in vitro* level, hence leading to their potentially faster introduction to clinical trials.

For the first time a novel technique based on thermal diffusivity and conductivity measurement (photothermal beam deflection spectroscopy – BDS) was employed in order to analyse in a

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