

Summary of doctoral dissertation

**"New gramine derivatives - synthesis, spectroscopic analysis
and assessment of biological activity"**

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The aim of my doctoral thesis was to obtain new derivatives of the indole alkaloid - gramine with potential antioxidant properties. By using appropriate modifications of the gramine molecule, three groups of previously unknown compounds were obtained.

By the click chemistry method, indole-triazole dimers containing aliphatic linkers of various carbon chain lengths and derivatives with an additional phenyl moiety or phthalimide ring were obtained. Compounds containing indole, triazole and steroid groups were obtained also by using click chemistry reaction conditions. In the last stage of my work, reactions leading to the preparation of a series of *N*-substituted indole esters were carried out.

The obtained derivatives were characterized by spectroscopic methods ^1H NMR, ^{13}C NMR, FT-IR and MS. The physicochemical properties of selected compounds were defined with theoretical methods,.

In cooperation with the Faculty of Biology of Adam Mickiewicz University, the hemocompatibility of all newly obtained derivatives was determined. Most of these compounds were tested for their cytoprotective activity. An additional aspect was the preliminary studies of the antibacterial and antifungal properties of selected compounds, based on experimental research conducted in cooperation with the University of Life Sciences in Poznań and by molecular docking methods.