

## ABSTRACT

Charles University, Faculty of Pharmacy in Hradec Králové

Department: Department of Organic and Bioorganic Chemistry

Candidate: Mgr. Jana Maříková

Supervisor: doc. PharmDr. Jiří Kuneš, CSc.

Title of Doctoral Thesis: NMR Spectroscopy in Structure Elucidation of Isolated Alkaloids

This doctoral thesis deals with the structure elucidation of secondary metabolites isolated from two different plant families – Amaryllidaceae and Apocynaceae. Isolation of analyzed compounds from these plants was performed by colleagues from the Department of Pharmaceutical Botany.

Nuclear magnetic resonance (NMR) spectroscopy was the crucial method for the structure determination of isolated alkaloids. Processed data acquired from one-dimensional NMR experiments, as well as multidimensional and dynamic NMR methods, led to the identification of various alkaloid structures. Furthermore, in certain specific cases of the analysis, chiral solvents were employed to determine enantiomeric purity. Other analytical experiments commonly used in the field of natural product identification were carried out.

The outcome of this work is the elucidation of 30 alkaloid structures not described in the literature or insufficiently characterized. Several new structural types have been identified, as well as structures representing isolation artifacts. Another 43 substances were confirmed by the comparison of experimental and published analytical data.