SUMMARY

This diploma thesis is focused on magmatic intrusions located in the Western Bohemia - Kdyně, Drahotín and Mutěnín intrusions. Available date from previous studies are summarized in the beggining of this work from the geological, mineralogical, petrological and geochemical general view. The rocks of individual massifs were studied again in detail by means of petrography and principal ock-forming minerals were analyzed by electron microprobe. Furthermore, selected rocks were analyzed for major/trace elements and in case of the Drahotín and Mutěnín intrusions, also for Sr-Nd isotopes.

These magmatic complexes are characterized by large petrographical variety and the previous studies pointed out to high degree of fractionation coupled with significant Fe-Ti enrichment. Except Kdyně massif (Miethig 1993; Svobodová 1999), these massifs have not been studied in detail by modern geological methods. This was a reason for this work, to obtain modern analytical data to answer some principal questions about origin and evolution of these intrusions. Such new data are necessary to get a complex view about these three massifs in the time-geological context of West Bohemia evolution. Because the Kdyně massif have been studied previously in detail (Miethig 1993; Svobodová 1999), data obtained by this study were usually used for comparison with the Mutěnín and Drahotín intrusions.

Though the previous study (Vejnar *et al.* 1984) pointed to some similar characteristics of these three massifs (e.g. rock sof gabbro-dioritic composition), it can be see from our major/trace element and Sr-Nd isotopic analysis, that Kdyně massif had to undergone different evolution then the Drahotín and Mutěnín massif.

Numerous mathematic models using trace elements (e.g. Th, La) and Sr-Nd isotopes were used to provide insights to the evolution of the studied magmatic complexes. The results of this modelling show that origin of these magmatic intrusions is not possible to explain by simple processes of equilibrium/fractional crystallization or by ideal mixing (e.g. gabbro-granulite/gneiss). We have shown, that complex processes such a combined assimilation and fractional crystallization (AFC) processes played key role in their origin. Therefore, all three intrusions evidently undergone AFC process, but with different asimilant. In the case of the Kdyně massif, primary magma assimilated material of gneiss composition (from lower crust ?) or the amphibolit (Svobodová 1999). On the other hand, chemical composition of the Drahotín and Mutěnín intrusions point to assimilant, which had a similar composition as phylite from the wall-rock of the Drahotín intrusion.