

## **Abstract**

This bachelor thesis deals with the introduction of new more sensitive reagents for the determination of plasma coagulation factor activity of the intrinsic pathway into the hematology laboratory.

The theoretical part deals with a brief description of the whole hemostasis process, individual coagulation factors, pathologies of hemostasis and determination of functional activity of coagulation factors.

The practical part is devoted to a comparative study of the functional activity of coagulation factors VIII, IX, XI and XII.

This study compares the results of the individual factors measured with the new STA C.K. Prest 5 reagents in combination with the respective immunodeficient plasmas with the results obtained by methods using the original STA PTT A reagents in combination with classical deficient plasmas. The measured values were then evaluated using the linear regression method and Bland-Altman plot to assess whether the methods using the new reagents could be implemented in the laboratory. The calculated values of the correlation coefficients of the individual methods are higher than  $r = 0.98$ , which together with the equations of the lines of the correlation plots indicate a close correlation between the results measured with the original reagents and those measured with the newly introduced reagents. The Bland-Altman plots show similar results. Significant differences between the results appear only in the area of significantly increased values of coagulation factor activity. However, the differences in these results in this area are not clinically significant.

The results of our comparative study show that the original and new reagents for the determination of the functional activity of coagulation factors VIII, IX, XI and XII give comparable results. Therefore, methods using the new STA C.K. Prest 5 reagents and the corresponding immunodeficiency plasmas can be introduced into the laboratory.

Keywords: haemostasis, factors of the intrinsic coagulation pathway, determination of functional activity of coagulation factors