

PP 04 Evaluation of the stability of blood glucose level at different combinations of antiglycolytic agents

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INTRODUCTION & OBJECTIVES: The aim of this research was to study the changes of blood glucose level during collection period and to evaluate a suitable combination of anti-glycolytic agents in order to preserve the glucose levels in blood samples.

METHODS: Venous blood was withdrawn from 30 volunteers, into 5 types of blood collection tubes and labeled as *A, B, C, D* and *E* (each containing EDTA, NaF + EDTA, NaF + KoX, NaF + EDTA + Citrate Buffer, and NaF + citrate buffer respectively). Plasma was separated at different time intervals of 1/2, 1, 2, 6 and 24 hour after collection and glucose levels of the samples were measured colorimetrically by glucose oxidase method. Rate of glucose loss was calculated in comparison to glucose concentration at half an hour.

RESULTS: The rate of glucose loss was increased with elapsed time since collection for all the chemicals. After 2 hours, the average rate of glucose loss was 19.7, 13, 11.3, 12.8 and 10.6% in tubes *A, B, C, D* and *E* respectively. After 6 hours, the rate of glucose loss was 42.7, 17.7, 16.8, 19.2 and 18.3 % in tubes *A, B, C, D* and *E* respectively. After 2 hours, the rate of glucose loss was less in the Tube *E* compared to the rest. But, after 6 and 24 hours, the rate of glucose loss was less in tube *C*. Average blood glucose level was low and also rate of glucose loss was high in tube *A* all the time. Thus, *A* was not a good antiglycolytic agent. Anti-glycolytic agent in tube *E* stabilized the blood glucose level up to 2 hours with minimal glucose loss when compared to other chemicals. The rate of glucose loss was 5.9% after 1 hour and 10.6% after 2 hours. In tube *C*, the rate of glucose loss was less after 2 hours (16.8% at 6 hours and 25.2% at 24 hours).

CONCLUSION: Based on findings, it could be concluded that the chemical *E* (sodium fluoride + citrate buffer) would be suitable for analysing blood glucose within 2 hours and *C* (sodium fluoride + potassium oxalate) would be suitable if analysing is delayed more than 2 hours