ABSTRACT

Control serum in the form of lyophilisate is a control material used in the implementation of internal quality assurance in clinical laboratories. This serum comes from the factory because it can be stable until the expiration date, but it is expensive and its availability is limited to laboratories that are far from city center distribution. Therefore, homemade control serum can be used as an alternative for checking blood glucose and uric acid. Storage of serum for controlling blood glucose parameters can be carried out at a temperature of -7℃ to -4℃ because it can be stable for up to 4 weeks and -15℃ for up to 8 weeks (Chairunnisa et al., 2017; Handayati et al., 2014), while uric acid is stable. for 8 weeks at -7℃ to -4 ℃ and -15 ℃ (Handayati et al., 2014). In this study, two treatments were used, namely temperatures of -2℃ to -4℃ and -20℃. The purpose of this study was to analyze the effect of storage time on the stability of alternative serum lyophilisate after reconstitution stored in the freezer for blood glucose and uric acid parameters.

This research is an experimental study with a time series research design. The sample in this study was an alternative serum lyophilisate after reconstitution which was stored in a freezer and checked for blood glucose and uric acid levels every week for 8 weeks.

The results of the study using a simple linear regression test showed that the length of storage time affected blood glucose levels at -2℃ to -4℃ by 74.2% and -20℃ by 55.8%. In the uric acid temperature parameter -2℃ to -4℃ the length of storage time has an effect of 59.1%, while -20℃ is 18.8%. According to the Levey Jennings control chart, blood glucose levels at -2℃ to -4℃ and uric acid levels at -20℃ are still in the range of $\bar{x} \pm 2$ SD. The CV value is also still below 7.7%, which are 3.47% and 5.18% respectively. So it can be concluded that the serum is stable. On the other hand, the results of the study on blood glucose temperature -20℃ and uric acid temperature -2℃ to -4℃ were unstable because they passed the $\bar{x} \pm 2$ SD range, even though the CV value was still below 7.7%, which was 6.73% each. and 6.21%,

Keywords: *Stability, reconstituted alternative serum lyophilized, storage temperature, blood glucose, and uric acid*