

ABSTRACT

Background: Laboratory services are an integral part of health services in making diagnoses, providing treatment, and monitoring the results of treatment so that there is a need for quality assurance of laboratory examinations. Quality assurance activities include the implementation of Quality Control using control materials. The factory-made control material is relatively expensive. WHO recommends serum for animals such as cow and horse for the manufacture of control materials. NaN_3 is used as a preservative for laboratory studies with concentrations of 0.1 - 2%.

Objective: To find out the homogeneity and stability test results of bovine serum with 2% NaN_3 preservative as a condition for control serum for alanine aminotransferase (ALT) examination.

Research Methods: This study is a true experiment using a research design pretest and posttest with control. The object of this study is the serum of cow given 2% NaN_3 preservative. The study was conducted in September until December 2018. The data collected is primary data. Data analysis used homogeneity test and stability test according to ISO 13528. Cow serum was homogeneous if $S_s \leq 0,3\sigma$ and stable if the value of $|X_r - Y_r| \leq 0,3\sigma$. The value of σ is $CV_{\text{Horwitz}} = 2^{1-0,5\log C}$.

Research Value: The homogeneity test of cow serum with preservative 2% NaN_3 the general average value (X_r) was 23,00, the standard deviation between sample (S_s) was 0,10541, the value of $0,3\sigma$ was 0,74855. In the stability test for cow serum, the average value of the examination results obtained on the stability test (Y_r) was 3,17, the value of $|X_r - Y_r|$ 19,83. The results of the study were cow serum with 2% NaN_3 preservative homogenous and not stable for examination of alanine aminotransferase (ALT).

Conclusion: Cow serum with 2% NaN_3 preservative was homogenous and not stable for examination of alanine aminotransferase (ALT) so that it could not be used as control serum.

Keyword: cow serum, stability, homogeneity, control serum.

ABSTRAK

Latar Belakang: Pelayanan laboratorium merupakan bagian integral pelayanan kesehatan dalam menegakkan diagnosis, pemberian pengobatan, dan pemantauan hasil pengobatan sehingga perlu adanya jaminan mutu pemeriksaan laboratorium. Kegiatan jaminan mutu antara lain dengan pelaksanaan *Quality Control* menggunakan bahan kontrol. Bahan kontrol buatan pabrik relatif mahal. WHO merekomendasikan serum hewan seperti sapi dan kuda untuk pembuatan bahan kontrol. NaN_3 biasa digunakan sebagai pengawet untuk penelitian laboratorium dengan konsentrasi 0,1 - 2%.

Tujuan Penelitian: Mengetahui hasil uji homogenitas dan stabilitas serum sapi dengan pengawet NaN_3 2% sebagai syarat serum kontrol terhadap pemeriksaan alanine aminotransferase (ALT).

Metode Penelitian: Penelitian ini adalah *true experiment* menggunakan desain penelitian *pre test and post test with control*. Objek penelitian ini adalah serum sapi yang diberi pengawet NaN_3 2%. Penelitian dilaksanakan pada bulan September 2018 sampai Desember 2018. Data yang dikumpulkan merupakan data primer. Analisis data menggunakan perhitungan uji homogenitas dan uji stabilitas sesuai ISO 13528. Serum sapi homogen bila $Ss \leq 0,3\sigma$ dan stabil bila nilai $|Xr - Yr| \leq 0,3\sigma$. Nilai σ adalah $CV_{\text{Horwitz}} = 2^{1-0,5\log C}$.

Hasil Penelitian : Pada uji homogenitas serum sapi dengan pengawet NaN_3 2% nilai rata-rata umum (Xr) 23,00, standar deviasi *between sample* (Ss) 0,10541, nilai $0,3\sigma$ adalah 0,74855. Pada uji stabilitas serum sapi diperoleh nilai rata-rata hasil pemeriksaan pada uji stabilitas (Yr) 3,17, nilai $|Xr - Yr|$ 19,83. Hasil penelitian adalah serum sapi dengan pengawet NaN_3 2% homogen dan tidak stabil terhadap pemeriksaan alanine aminotransferase (ALT).

Kesimpulan: Serum sapi dengan pengawet NaN_3 2% homogen dan tidak stabil terhadap pemeriksaan alanine aminotransferase sehingga tidak dapat digunakan sebagai serum kontrol.

Kata Kunci: serum sapi, stabilitas, homogenitas, serum kontrol.