

ABSTRACT

Background : Internal quality assurance of clinical laboratories is carried out to ensure the quality of laboratory examinations. One of the laboratory internal quality assurance activities is quality control which requires control serum. The availability and cost of expensive control sera is an obstacle for clinical laboratories. Research from WHO (1986) said that the use of control materials from animal serum such as cattle is more recommended than human serum because it is easy to obtain, economical, and free from the risk of infectious diseases. The control material requirements must be homogeneous and stable. One of the quality control parameters in the clinical laboratory is the albumin level examination.

Objective : to determine the results of the homogeneity test of bovine serum that given by 7,5% ethylene glycol before storage at -20°C and the results of the stability test of bovine serum after stored at -20°C for, 5, 10 and 15 weeks on albumin levels.

Methods : This research was an analytical observation using one group pre and post test design. The subject of this research was bovine blood taken from the Giwangan Animal Breeding House, Department of Agriculture and Food, Yogyakarta City. Data analysis used homogeneity and stability tests which were calculated statistically based on ISO 1358: 2005.

Results : The sample was declared homogeneous because it had qualified for $S_s \leq 0.3\sigma$ which is $0.15911 \leq 1.02021$. Based on the homogeneity test data obtained $X_r = 2.93950$. The calculation of the stability test obtained Y_r 5 weeks = 2.92, Y_r 10 weeks = 2.77, and Y_r 15 weeks = 2.94. Based on the stability test data, bovine serum stored for 5, 10 and 15 weeks was declared stable because it had qualified for $|X_r - Y_r| = \leq 0.3\sigma$ that is $0.02 \leq 1.02021$, $0.17 \leq 1.02021$ and $0.001 \leq 1.02$.

Conclusion : Bovine serum levels after being stored at -20° for 5, 10 and 15 weeks were stated to be homogeneous and stable to albumin levels.

Keywords : Homogeneity, stability, bovine serum, control serum, albumin levels

ABSTRAK

Latar Belakang : Pemantapan mutu internal laboratorium klinik dilakukan untuk menjamin kualitas pemeriksaan laboratorium. Salah satu kegiatan pemantapan mutu internal laboratorium adalah kontrol kualitas yang membutuhkan serum kontrol. Ketersediaan dan harga serum kontrol yang mahal menjadi kendala bagi laboratorium klinik. Penelitian dari WHO (1986) mengatakan, penggunaan bahan kontrol dari serum hewan seperti sapi lebih direkomendasikan dari pada serum manusia karena mudah didapat, ekonomis, bebas dari resiko penyakit menular. Syarat bahan kontrol yaitu harus homogen dan stabil. Salah satu parameter kontrol kualitas di laboratorium klinik adalah pemeriksaan kadar albumin.

Tujuan Penelitian : Mengetahui hasil uji homogenitas serum sapi yang diberi etilen glikol 7,5% sebelum disimpan pada suhu -20°C dan hasil uji stabilitas serum sapi setelah disimpan pada suhu -20°C selama, 5, 10 dan 15 minggu terhadap kadar albumin.

Metode Penelitian : Penelitian ini adalah observasi analitik menggunakan design *one group pre and post test*. Subjek penelitian ini adalah darah sapi yang diambil dari Rumah Potong Hewan Giwangan Dinas Pertanian dan Pangan Kota Yogyakarta. Analisis data menggunakan uji homogenitas dan stabilitas yang dihitung secara statistik berdasarkan ISO 1358:2005.

Hasil Penelitian : Sampel dinyatakan homogen karena telah memenuhi syarat $S_s \leq 0.3\sigma$ yaitu $0,15911 \leq 1,02$. Berdasarkan data uji homogenitas diperoleh $X_r = 2,93950$. Perhitungan uji stabilitas didapatkan Y_r 5 minggu = 2,92, Y_r 10 minggu = 2,77, dan Y_r 15 minggu = 2,94. Berdasarkan data uji stabilitas serum sapi yang disimpan selama 5, 10 dan 15 minggu dinyatakan stabil karena memenuhi syarat $|X_r - Y_r| \leq 0.3\sigma$ yaitu $0,02 \leq 1,02$, $0,17 \leq 1,02$ dan $0,001 \leq 1,02$.

Kesimpulan : Kadar serum sapi setelah disimpan pada suhu -20° selama 5, 10 dan 15 minggu dinyatakan homogen dan stabil terhadap kadar albumin.

Kata Kunci : Homogenitas, stabilitas, serum sapi, serum kontrol, kadar albumin