

ABSTRAK

Latar Belakang: Agar darah domba merupakan media standar emas untuk pertumbuhan bakteri fastidious seperti *Streptococcus pneumoniae*. Namun, ketersediaan darah domba sering terkendala oleh biaya yang mahal dan keterbatasan persediaan darah. Sedangkan, *Packed Red Cell* (PRC) kedaluwarsa merupakan komponen darah yang lebih mudah diakses dengan potensi nutrisi serupa sehingga dapat dipertimbangkan menjadi media kultur alternatif.

Tujuan: Penelitian ini bertujuan untuk membandingkan efektivitas pertumbuhan jumlah koloni dan zona hemolisis *Streptococcus pneumoniae* pada media agar darah domba dengan media agar PRC kedaluwarsa konsentrasi 2,5% dan 5%.

Metode: Jenis penelitian ini adalah observasional dengan desain penelitian *cross-sectional*. Inokulum bakteri disetarakan dengan standar 0,5 McFarland. Parameter yang diukur adalah jumlah koloni dan pengamatan zona hemolisis bakteri. Data yang didapatkan kemudian diolah menggunakan perhitungan *productivity ratio* dan analisis deskriptif.

Hasil: Hasil perhitungan *productivity ratio* untuk media agar PRC kedaluwarsa 5% = 1,005 dan media agar PRC kedaluwarsa 2,5% = 1,055 yang melebihi ambang batas 0,70. Pengamatan zona hemolisis menunjukkan hasil alfa-hemolisis yang muncul pada seluruh sampel di ketiga kelompok media.

Kesimpulan: Media agar PRC kedaluwarsa konsentrasi 2,5% dan media agar PRC kedaluwarsa konsentrasi 5% dapat digunakan sebagai alternatif pengganti darah domba untuk media kultur bakteri.

Kata Kunci: *Streptococcus pneumoniae*, agar darah domba, packed red cell, jumlah koloni, alfa-hemolisis

ABSTRACT

Background: Sheep blood agar is the gold standard medium for the growth of fastidious bacteria such as *Streptococcus pneumoniae*. However, the availability of sheep blood is often hampered by high costs and limited blood supplies. Expired Packed Red Cell (PRC) are a more accessible blood component with similar nutritional potential and can therefore be considered as an alternative culture medium.

Objective: This study aimed to compare the growth effectiveness of *Streptococcus pneumoniae* colonies and hemolysis zones on sheep blood agar with expired PRC agar at 2.5% and 5% concentrations.

Methods: This was an observational study with a cross-sectional design. The bacterial inoculum was equated to the 0.5 McFarland standard. The parameters measured were colony counts and observations of bacterial hemolysis zones. The data obtained were then processed using productivity ratio calculations and descriptive analysis.

Results: The productivity ratio calculations for expired PRC agar at 5% were 1.005 and expired PRC agar at 2.5% were 1.055, exceeding the threshold of 0.70. Observations of the hemolysis zone showed alpha-hemolysis in all samples across all three media groups.

Conclusion: Expired PRC agar media with a concentration of 2.5% and expired PRC agar media with a concentration of 5% can be used as an alternative to sheep blood for bacterial culture media.

Keywords: *Streptococcus pneumoniae*, sheep blood agar, packed red cell, colony count, alpha-hemolysis