

COMPARATIVE TEST OF *Streptococcus pneumoniae* GROWTH ON HORSE BLOOD AGAR AND SHEEP BLOOD AGAR

ABSTRACT

Background: *Streptococcus pneumoniae* is a fastidious bacterium that requires nutrient-rich media for growth, such as blood agar. This medium typically uses sheep's blood, but since its availability is limited, alternatives such as horse blood—which has similar nutritional properties—are needed.

Objective: to determine that horse blood agar can be used as an alternative to sheep blood agar for the culture of *Streptococcus pneumoniae*.

Methods: This study employed a quasi-experimental design with a static-group comparison approach. The study subjects were *Streptococcus pneumoniae* bacteria cultured on horse and sheep blood agar media, with 15 replicates for each. Observations included colony diameter, colony characteristics, and bacterial cells. Data analysis was performed using an Independent Samples T-Test.

Results: The colonies on both media were round, grayish-white in color, concave in elevation, with smooth edges, a soft texture, and exhibited alpha hemolysis. The bacterial cells on both media were purple in color, diplococcal in shape, and Gram-positive. The mean colony diameter measurements on sheep blood agar and horse blood agar media were 0.71 mm and 0.70 mm, respectively, with a mean difference in colony diameter of 0.01 mm (1.42%). The effectiveness of horse blood agar was 102%, which was rated as highly effective. Statistical analysis showed no difference in the growth of *Streptococcus pneumoniae* on horse blood agar and sheep blood agar media.

Conclusion: There was no difference in the growth of *Streptococcus pneumoniae* on horse blood agar and sheep blood agar. Horse blood agar can serve as an alternative to sheep blood agar for the isolation and identification of *Streptococcus pneumoniae*.

Keywords: *Streptococcus pneumoniae*, horse blood agar, sheep blood agar

UJI BANDING HASIL PERTUMBUHAN BAKTERI *Streptococcus pneumoniae* PADA MEDIA AGAR DARAH KUDA DAN DOMBA

ABSTRAK

Latar Belakang: Bakteri *Streptococcus pneumoniae* merupakan bakteri fastidious yang memerlukan media dengan nutrisi kompleks dalam pertumbuhannya seperti media agar darah. Media ini umumnya menggunakan darah domba, namun ketersediaannya terbatas sehingga diperlukan alternatif seperti darah kuda yang memiliki nutrisi serupa.

Tujuan: Mengetahui bahwa media agar darah kuda dapat digunakan sebagai media alternatif pengganti media agar darah domba pada bakteri *Streptococcus pneumoniae*.

Metode: Penelitian ini menggunakan desain *quasi experimental* dengan pendekatan *static-group comparison*. Subjek penelitian bakteri *Streptococcus pneumoniae* yang ditumbuhkan pada media agar darah kuda dan domba dengan pengulangan masing-masing 15 kali. Pengamatan meliputi diameter koloni, karakteristik koloni serta sel bakteri. Analisis data menggunakan *Independent Sample T-Test*.

Hasil: Koloni pada kedua media berbentuk bulat, berwarna putih keabuan, elevasi cekung, tepian rata, tekstur lunak dan terbentuk alfa hemolisis. Sel bakteri pada kedua media berwarna ungu, berbentuk *diplococcus* dan termasuk dalam Gram positif. Rerata hasil pengukuran diameter koloni pada media agar darah domba dan agar darah domba adalah 0,71 mm dan 0,70 mm dengan selisih rerata diameter koloni adalah 0,01 mm (1,42%). Efektivitas media agar darah kuda adalah 102% dinilai sangat efektif. Analisis statistik menunjukkan tidak ada perbedaan pertumbuhan bakteri *Streptococcus pneumoniae* pada media agar darah kuda dan domba.

Kesimpulan: Tidak ada perbedaan pertumbuhan bakteri *Streptococcus pneumoniae* pada media agar darah kuda dan domba. Media agar darah kuda dapat menjadi media alternatif pengganti media agar darah domba dalam isolasi dan identifikasi bakteri *Streptococcus pneumoniae*.

Kata Kunci: *Streptococcus pneumoniae*, agar darah kuda, agar darah domba