ABSTRAK

Latar Belakang: Media pertumbuhan merupakan bagian terpenting dalam pemeriksaan mikrobiologi untuk mendukung pertumbuhan dan identifikasi bakteri. *Mannitol Salt Agar* (MSA) merupakan media selektif dan diferensial yang umum digunakan untuk mengidentifikasi bakteri *Staphylococcus aureus*. Namun, biaya media pabrikan yang relatif tinggi mendorong perlunya pengembangan media alternatif berbahan alami yang lebih ekonomis. Infusa kacang kedelai (*Glycine max L. Merr*) mengandung protein nabati dan asam amino serta adanya tambahan kaldu daging dan ekstrak ragi yang berpotensi digunakan sebagai sumber nutrisi dalam media pertumbuhan.
Tujuan: Mengetahui efektivitas media modifikasi infusa kacang kedelai dalam menumbuhkan bakteri *Staphylococcus aureus* berdasarkan karakteristik morfologi koloni, morfologi sel, diameter koloni, serta kemampuan media dalam menjalankan fungsi selektif dan diferensial jika dibandingkan dengan media MSA.
Metode: Penelitian ini merupakan eksperimen murni (*True Experiment Research*) dengan desain penelitian *Post Test Only Control Group.*
Hasil: Karakteristik koloni bakteri yang tumbuh pada media modifikasi serupa dengan media MSA, yaitu berwarna kuning, berukuran kecil hingga sedang, berbentuk bulat, permukaan halus, tepi rata, elevasi cembung, serta mampu meragi manitol. Secara mikroskopis, sel bakteri juga menunjukkan karakteristik yang serupa, yaitu *coccus*, tersusun bergerombol menyerupai untai anggur, berwarna ungu dan bersifat gram positif. Rerata diameter koloni bakteri pada media modifikasi dan media MSA setelah inkubasi 1x24 jam berturut-turut adalah sebesar 0,7 mm dan 0,56 mm. Sedangkan, rerata diameter koloni bakteri setelah inkubasi 2x24 jam berturut-turut adalah sebesar 1,27 mm dan 1,24 mm. Efektivitas perkembangbiakkan bakteri pada media modifikasi setelah inkubasi 48 jam mencapai 102,4% dan termasuk kategori sangat efektif.
Kesimpulan: Media modifikasi infusa kacang kedelai (*Glycine max L. Merr*) mampu menumbuhkan dan mengembangbiakkan bakteri *Staphylococcus aureus* dengan persentase efektivitas sebesar 102,4% atau dapat dinyatakan efektif dibandingkan dengan media *Mannitol Salt Agar* (MSA) pabrikan.

Kata Kunci: *Staphylococcus aureus,* media modifikasi infusa kacang kedelai dengan eksrak ragi dan kaldu daging, *Mannitol Salt Agar*

ABSTRACT

Background: Growth media are a crucial component of microbiological examinations, supporting bacterial growth and identification. Mannitol Salt Agar (MSA) is a selective and differential medium commonly used to identify Staphylococcus aureus bacteria. However, the relatively high cost of manufactured media has prompted the development of more economical alternative media based on natural ingredients. Soybean (Glycine max L. Merr) infusion contains vegetable protein and amino acids, and the addition of meat broth and yeast extract has the potential to be used as a nutrient source in growth media.
Objective: To determine the effectiveness of modified soybean (Glycine max L. Merr) infusion media in growing and cultivating Staphylococcus aureus bacteria based on colony morphology, cell morphology, colony diameter, and the media's ability to perform selective and differential functions compared to Mannitol Salt Agar (MSA).
Methods: This study was a true experimental research using a Post-Test Only Control Group Design.
Results: The characteristics of the bacterial colonies growing on the modified medium were similar to those growing on Mannitol Salt Agar (MSA), namely yellow in color, small to medium in size, round in shape, with a smooth surface, flat edges, a convex elevation, and the ability to ferment mannitol. Microscopically, the bacterial cells also exhibited characteristics similar to those on Mannitol Salt Agar (MSA) medium, namely small, round (coccus) cells arranged in clusters resembling a string of grapes, purple in color, and Gram-positive. The average bacterial colony diameter on the modified medium and Mannitol Salt Agar (MSA) after consecutive 24-hour incubations was 0.7 mm and 0.56 mm, respectively, with a difference of 0.14 mm. Meanwhile, the average bacterial colony diameter on the modified medium and Mannitol Salt Agar (MSA) after consecutive 2×24-hour incubations was 1.27 mm and 1.24 mm, respectively, with a difference of 0.03 mm. The effectiveness of bacterial growth on the modified medium after 48 hours of incubation reached 102.4%, which falls into the highly effective category.
Conclusion: The modified soybean (Glycine max L. Merr) infusion medium, mixed with meat broth and yeast extract, was capable of growing and propagating Staphylococcus aureus bacteria with an effectiveness percentage of 102.4%, indicating it is effective compared to commercial Mannitol Salt Agar (MSA).

Keywords: *Staphylococcus aureus*, modified soy infusion media with yeast extract and meat broth, *Mannitol Salt Agar*