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FLAXSEED GEL MEDIA AS A NATURAL ALTERNATIVE TO COMMERCIAL MEDIA USED IN KIRBY-BAUER DISK DIFFUSION METHOD

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Microbial growth media is an important aspect of studying microorganisms in a controlled environment. A typical growth medium consists of water, a carbon source, a nitrogen source, and various macro and micronutrients. The Kirby-Bauer disk diffusion method is an antibiotic sensitivity test that aids clinicians in selecting suitable drug treatments against various microbial strains. This method involves culturing a microbial strain on growth media and observing its growth pattern in conjunction with antimicrobial drugs applied to the surface using diffusion disks. Seeds of *Linum usitatissimum* L. (flaxseeds) are nutrient-rich and primarily consist of proteins and soluble fibres, from which a mucilage layer can be extracted using water. The current study focused on determining the potential of flax mucilage/gel to be used as a natural alternative medium to Mueller-Hinton agar (MHA) used in the Kirby-Bauer disk diffusion method. The flax-gel was extracted from the whole flaxseeds with heated water (90-95 °C) at a ratio of 1:15 (seed:water). To increase the solidification of the flaxseed gel, 0.67 g of bacteriological agar and 0.15 g of anhydrous glucose as the carbon source were added for every 100 mL of flax-gel. The resulting flax-gel medium was used in the Kirby-Bauer disk diffusion method for four bacterial strains, *viz.*, *Pseudomonas aeruginosa*, *Bacillus cereus*, *Escherichia coli*, and *Staphylococcus aureus*, with the positive controls being MHA and Nutrient Agar. The effectiveness of the antibiotic sensitivity on tested media was statistically analysed based on the measured diameters of inhibition zones. The measured diameters from the flaxseed gel medium were similar to those from the MHA. This suggests that flax-gel media could be an alternative to MHA; however, further studies are needed to standardize its application.

Keywords: Antibiotic sensitivity testing, Bacteria, Flaxseed, Growth media, Mucilage