

**Title:** Isolation and Characterization of Bacterial Coliforms in Yoghurt Produced at The University of Embu Dairy Farm

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### **Abstract**

This study aimed at isolating and characterizing bacterial coliforms in yoghurt produced at the University of Embu dairy farm. 250 ml yoghurt was used for experimentation at the microbiology laboratory(lab). MaCconkey agar was diluted in distilled water and placed it in the autoclave together with the plates to be used for sterilization. An antifungal (cycloheximide) was added into the media and the media was regulated to a pH of 7.2 by addition of sodium hydroxide. Serial dilution was carried out using a micropipette into 6 tubes forming the samples of the study. Pure cultures were isolated whereby 2.8g of nutrient agar was measured into plates and incubated to allow growth of pure cultures. Gram staining technique was carried out whereby sterile slides were labeled appropriately and used to make microbial smears from each pure culture. The smears on each slide were gently flooded with crystal violet and allowed to stand for 1 minute then rinsed with distilled water. Ethyl ethanol was applied by drop rinsed and finally safranin was flooded and allowed to stand for 1 min and rinsed with distilled water. The slides were allowed to dry then viewed under oil immersion using a compound microscope. Substrate utilization and biochemical tests were carried out to confirm the presence of bacterial coliforms and their ability to utilize nutrients. Pure isolates were stored at different temperatures and we observed their growth rate. In this study, four bacterial isolates namely 1, 2, 3 and 4 were isolated from the yoghurt sample after serial dilution. All isolates were found to be enteric bacteria since they were all able to grow and show visible colonies on macConkey agar. The bacterial isolates were identified to be gram negative rods after carrying out the gram staining. The isolates were able to utilize different substrates such as cellulose, skimmed milk, glycerol, starch and Simmons citrate. All isolates had positive growth at optimum temperatures. The result of this study concluded that there was presence of bacterial coliforms in the yoghurt produced in the university dairy farm. The results are thus significant to the health of the public, especially consumers of these brands of yoghurt. The study recommends that the university dairy farm should ensure that the yoghurt produced is within the recommended coliform bacterial count appropriate for human consumption and to avoid spoilage.