

PREVALENCE OF EXTENDED SPECTRUM β -LACTAMASE-PRODUCING *Klebsiella* STRAINS IN COMMERCIALY AVAILABLE DAIRY PRODUCTS

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Implementing intensive hygienic practices is essential in the dairy industry because it can be contaminated with numerous pathogens. *Klebsiella* is one of the major pathogenic bacteria responsible for contaminating dairy products. Nowadays, *Klebsiella* is emerging as a serious human pathogen causing community-acquired infections with an increasing incidence of multidrug resistance. The enzyme called beta-lactamase in *Klebsiella* is responsible for its antibiotic resistance. The objective of this study was to investigate the presence of Extended Spectrum Beta Lactamase (ESBL)-producing *Klebsiella* strains in commercially available dairy products. The study was carried out with the following steps: isolation and identification of *Klebsiella* strains, performing polymerase chain reaction (PCR) to detect *Klebsiella* using genus-specific primer, and conducting the antibiotic sensitivity test by double disk synergy test to confirm the ESBL-producing strains. In this study, 124 dairy products including yoghurt, curd, paneer, ice cream, drinking yoghurt and other frozen desserts were collected, with 56 samples from small-scale manufacturers and 68 samples from large-scale manufacturers. Among those 124 samples, 35 *Klebsiella* isolates were identified based on their morphological and biochemical characteristics and all the contaminated samples belonged to small-scale manufacturers. Those 35 isolates were subjected to PCR detection and 23 isolates were confirmed as *Klebsiella* genotypically. Amongst, 03 isolates were confirmed as beta-lactamase producers through the keyhole phenomenon of the double disk synergy test. Further, it was noted that all the confirmed *Klebsiella* strains were isolated from the samples belonging to small-scale dairy product manufacturers constituting 62.5% of the total. The detection of antibiotic-resistant strains in dairy products indicates a significant public health risk posed by inadequate hygiene in small-scale production. This emphasizes the necessity of improving hygienic measures to ensure food safety in small-scale dairy production.

Keywords: Antibiotic sensitivity, Dairy products, Hygienic practices, Multidrug resistance