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Thesis Title: Study on antibiotic resistant to tetracycline and fluoroquinolones in *klebsiella pneumoniae* isolated from mastitic cow milk

Summary:

Despite significant advances in the livestock industry, the dairy industry is increasingly concerned about antibiotic resistance resulting from *Klebsiella pneumoniae* bacteria found in the milk of cows suffering from mastitis. Mastitis is a major economic detriment in dairy industries. In the present study, the level of resistance to tetracycline and fluoroquinolones antibiotics in *Klebsiella pneumoniae* isolated from samples of milk from cows with mastitis in some farms in the cities of Oshnavieh, Naqadeh, and Piranshahr in West Azerbaijan Province, Iran, was investigated. A total of 131 mastitic milk samples were collected, and after cultivation, PCR, and electrophoresis, 35 cases were found to be infected with *Klebsiella* bacteria. The study demonstrated that out of the 35 positive samples, 9 samples (25.7%) harbored the tetA gene, associated with resistance to tetracycline. However, none of the positive samples carried the qnrA resistance gene, which is associated with resistance to fluoroquinolones. The highest contamination rate was observed in the Sargiz region of Oshnavieh city (50%), while the lowest contamination rate was found in the KhaledAbad areas of Oshnavieh city, Tabieh, Chiane in Naqadeh city, and Babakrabad and Qalateh Rosh in Piranshahr city, where no cases of contamination with *Klebsiella* were detected. The findings suggest that *Klebsiella pneumoniae* is one of the common causes of bovine mastitis in this regions, and isolates may escape the immune system due to the presence of the *tetA* gene. However, they are still not resistant to fluoroquinolones, commonly used for treatment, indicating that resistance to these antibiotics has not yet become widespread in this region. The significance of these findings lies in the fact that fluoroquinolones are vital antibiotics for treating bovine mastitis, and the development of resistance to these drugs could have serious consequences for the dairy industry. Therefore, the identification and continuous monitoring of antibiotic resistance are crucial for maintaining the health of both humans and animals.

Keywords: Cow, mastitis, *klebsiella*, antibiotic resistant