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Microbiological Assessment of Soft Cheese (Wara), Raw Milk and Dairy Drinking Water from Selected Farms in Ido, Ibadan, Nigeria

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Abstract : Milk is an important source of micro and macronutrients for humans. Soft Cheese (Wara) is an example of a by-product of milk. In addition, water is considered as one of the most vital resources in cattle farms. Due to the high consumption rate of milk and soft cheese and the traditional techniques involved in their production in Nigeria, there was a need for a microbiological assessment which will be of utmost public health importance. The study thus investigated microbial risk assessments associated with consumption of milk and soft cheese (Wara). It also investigated common pathogens present in dairy water in farms and antibiotic sensitivity profiling for implicated pathogens were conducted. Samples were collected from three different Fulani dairy herds in Ido local government, Ibadan, Oyo State, Nigeria and subjected to microbiological evaluation and antimicrobial susceptibility testing. Aspergillus flavus was the only isolated fungal isolate from Wara while Staphylococcus aureus, Vibro cholera, Hafnia alvei, Proteus mirabilis, Escherishia coli, Psuedomonas aeuroginosa, Citrobacter freundii, and Klebsiella pneumonia were the bacteria genera isolated from Wara, dairy milk and dairy drinking water. Bacterial counts from Wara from the three selected farms A, B and C were 3.5×105 CFU/ml, 4.0×105 CFU/ml and 5.3×105 CFU/ml respectively while the fungal count was 3CFU/100µl. The total bacteria count from dairy milk from the three selected farms A, B and C were Farms 2.0 ×105 CFU/ml, 3.5 × 105 CFU/ml and 6.5 × 105 CFU/ml respectively. 1.4×105 CFU/ml, 1.9×105 CFU/ml and 4.9×105 CFU/ml were the recorded bacterial counts from dairy water from farms A, B and C respectively. The highest antimicrobial resistance of 100% was recorded in Wara with Enrofloxacin, Gentamycin, Cefatriaxone and Colistin. The highest antimicrobial susceptibility of 100% was recorded in Raw milk with Enrofloxacin and Gentamicin. Highest antimicrobial intermediate response of 100% was recorded in Raw milk with Streptomycin. The study revealed that most of the cheeses sold at Ido local Government are contaminated with pathogens. Further research is needed on standardizing the production method to prevent pathogens from gaining access. The presence of bacteria in raw milk indicated contamination due to poor handling and unhygienic practices. Thus, drinking unpasteurized milk is hazardous as it increases the risk of zoonoses. Also, the Provision of quality drinking water is crucial for optimum productivity of dairy. Health education programs aiming at increasing awareness of the importance of clean water for animal health will be helpful.

Keywords : dairy, raw milk, soft cheese, Wara
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