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Commentary

Bacteriology and Bacteriological Examination Applications

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DESCRIPTION

Bacteriology is a field and specialization of biology that investigates the morphology, ecology, genetics, and biochemistry of bacteria, as well as many other aspects of them. This branch of microbiology is concerned with the identification, grouping, and characterization of bacterial species. If, after performing the post-mortem meat inspection at the abattoir, a clear conclusion about the effectiveness for human consumption cannot be established, a Bacteriological Examination (BE) can be used as a decision support tool for each particular slaughter animal. BE was made necessary in the early twentieth century, and techniques have developed in the many nations that use it since then. Although BE is still used, there's a lack of agreement over the fact whether it is actually a useful component of meat analysis.

There is currently no European agreement on how to establish up the methodology or interpret the outcomes. Nonetheless, there is a need for reducing excessive food waste while maintaining food safety. We mapped the BE approaches now utilized in five European nations, namely Denmark, Finland, Germany, Italy, and the Netherlands, in this descriptive research. The results reveal that there is significant heterogeneity between nations in terms of the specific analysis, sample matrices, and media employed. There is also disagreement on when the BE should be performed and whether the results leads to the judgement. Although results will be evaluated in connection with the pathological anomalies in the carcass, there should be clear written instructions regarding how to properly analyze the data and when to condemn. BE is more widely used for cattle than for other animals like pigs, yet it is not utilized in pigs throughout the Denmark due to cost. The bacterial quality of oil and gas-related generated water is determined by the interplay of a complex collection of parameters that inevitably dictate the ease with which this waste product may be efficiently handled. Only a few researches have looked at the interaction of these variables on the prevalence of coliform bacteria. The levels of 20 physical and bacteriological parameters were assessed using the American Public Health Association (APHA) accepted methods for wastewater assessment. The coliform bacteria counts in the generated water data received from a waste treatment plant in Ghana were then fitted with negative binomial regression models.

The temperature, turbidity, BOD, COD, grease and oil, total phosphorus, and nitrates were important indicators of total coliform count, but pH, conductivity, salinity, total solids in solution, and chloride were not. With the exception of oil and grease, the associations between coliform bacteria incidence and BOD, COD, and nitrates were not strong and vanished in the organic, nutrients, and demand framework at the multivariate level. However, when physical characteristics were included, the substantial associations were restored, showing that the latter inhibited the link in the organic, nutrients, and demand model.

Only when chemical and physical variables were included in the model with multiple variables was pH an important indicator of coliform bacteria occurrence. Both sets of parameters mediated the link between BOD and the occurrence of coliform bacteria.

Higher BOD values indicate elevated organic matter content in water, providing a favorable environment for the growth and proliferation of coliform bacteria, which are often associated with fecal contamination.

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