The Effect of Manure Microbes on the Growth of Clavibacter Michiganensis subspecies nebraskensis

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How do cattle manure microbes affect the growth of Clavibacter Michiganensis subspecies nebraskensis (Cmn)? Cmn is a bacteria and the cause of Goss's Bacterial Wilt in zea mays. In this study, the growth of Clavibacter Michiganensis subspecies nebraskensis was analyzed when competing with microbes from cattle manure. A prior study on Clavibacter Michiganensis subspecies sepedonicus (Cms), a cause of disease in Solanum tuberosum, showed that the population of Cms, a bacteria similar to Cmn, was negatively impacted by competition with microbes in cattle manure. Based off this study and other data, it is hypothesized that the manure microbes will decrease the growth of Cmn. For the procedure, Cmn were grown in Nutrient Broth Yeast Extract (NBY). Microbes were extracted from the cattle manure by conducting a dilution series. The dilutions of manure microbes were then mixed with Cmn in NBY broth. The different solutions then sat for two days before a dilution series was performed on the Cmn and manure microbe mixture. The dilution series of the manure microbe and Cmn solution was plated in order to determine the colony forming units (CFUs) per milliliter. After conducting two tests, zero colonies of Cmn grew from the NBY broth containing manure microbes. A control solution of only Cmn averaged 725000 CFUs/ml. Based off this data, the researcher rejects the hypothesis.

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