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Biological systems and organisms

Dr. Akhwale's research focuses on the use of bacteriophages (bacteria-infecting viruses) to control soft rot of fruits and vegetables caused by certain strains of *Erwinia* and *Pseudomonas* bacteria, to mitigate post-harvest losses and enhance food security. Large quantities of fruits and vegetables are wasted every year during their journey to consumers due to microbial spoilage. Among the bacteria that cause this spoilage, pectinolytic strains of *Erwinia* and *Pseudomonas* species are the most destructive, and current methods to control them using bactericides and antibiotics are not sustainable due to increased bacterial resistance. Dr. Akhwale is investigating the use of phages as a safe and economically viable way to control these phytopathogens. The mitigation of fruit and vegetable postharvest loss in Kenya will not only ensure fresh quality and nutritional value of the foods, but will also reduce chemical contaminants in the food supply and help to achieve food security. With the support from the Early Career fellowship, she will be able to buy consumables and equipment including glassware, a Gel Document Imaging System and a centrifuge for her lab, as well as to undertake field visits to study the prevalence of soft rot disease.