

Abstract:

This study aimed at determining the occurrence of bacterial pathogens in farmed tilapia, catfish, goldfish and koi carp and source pond water in Kirinyaga County. A total of 181 healthy-appearing fish and 27 water samples from randomly selected fish farms in the county were processed. Bacteriological isolation was done on aseptically collected skin and kidney swabs; gills and a portion of intestines from each fish, and water samples. Isolated bacteria were identified by colony morphology, Gram stain and biochemical characteristics, and some further characterized using API-20E kit. A total of 329 bacterial isolates were recovered from fish organs and 39 from pond water samples. They belonged to 17 genera with 18 different identified bacterial species. The most prevalent species found on the skin, gills, intestines, kidney, and water samples belonged to five genera: *Proteus* spp. (14.9%), *Aeromonas hydrophila* (8.2%), *Aeromonas caviae* (6.3%), *Plesiomonas* (5.2%), *Flavobacterium* spp. (5.2%), *Aeromonas sobria* (4.3%) and *Micrococcus* spp. (4.3%). Some isolates (11%, n=42) could not be identified. Bacterial species recovered from fish samples were also found in the water samples except: *Streptococcus* spp., *Pseudomonas luteola*, *Serratia plymuthica* and *Klebsiella oxytoca*. *Raoultella terrigena* was recovered from water samples only. The study has shown that farmed fish and aquatic environments harbor potentially pathogenic and zoonotic bacteria which may cause significant fish diseases and public health risks. Therefore, there is need to implement stringent management and biosecurity programs.