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Molecular studies on Vibrio species isolate from fish.

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Fish is a very important food of high protein value in Egypt. Vibriosis is a very serious disease affecting fish production, that caused by *Vibrio* species, affecting both fresh and marine water fishes causing pathogenic symptoms including dermal ulceration, septicemia and ascites. Leading to highly economical losses.

In our study, we examined 100 fish samples collected from fish markets at Kafr ElSheikh governorate and transported immediately to our Microbiology departement at (AHRI) Animal Health Research Institute, Kafr ElSheikh branch for bacteriological examination as 25 apparent healthy and 75 naturally infected (diseased) fish. Liver, kidney, spleen, gills, external skin lesions and heart were collected and cultivated for bacteriological examination.

The collected samples cultivated on TCBS agar media and the green and yellow colonies stained by Gram stain.

About 90 samples showed green and yellow colonies, that examined biochemically and about 83 samples suspected to be positive biochemically to vibrio.

Biochemical tests not produced accurate identification results, so PCR assay seems to be a sensitive, rapid and effective method for bacteriological characterization. 10 random samples examined by PCR for 16S rRNA that act as a specific primer for vibrio species that show 8 positive samples to vibrio.

The 8 positive samples examined for *V.harveyi, V.parahaemolyticus,V.anguillarum and V. alginolyticus* species specific primers.

Vibrio alginolyticus detected by VP32 and VP33 gene, *Vibrio anguillarum* detected by Van-ami8 and Van-ami417 gene**,** Vh_toxR used to identify *Vibrio harveyi* and *Vibrio Parahaemolyticus* identified by toxR gene .

As in our thesis, PCR amplification show 8 vibrio strains show 1 *V.alginolyticus*, 1*V. anguillarum*, 2 *V.harveyi* and 4 *V.parahaemolyticus* as 12.5%,12.5%,25%and 50% respectively.

Also PCR technique used to identify some of virulence factors which found in each species.