

بسم الله الرحمن الرحيم





شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم



جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

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Cairo University
Faculty of Veterinary Medicine
Department of Microbiology and Immunology

Molecular and conventional assays for detection of Arcobacter species

A Thesis Submitted by

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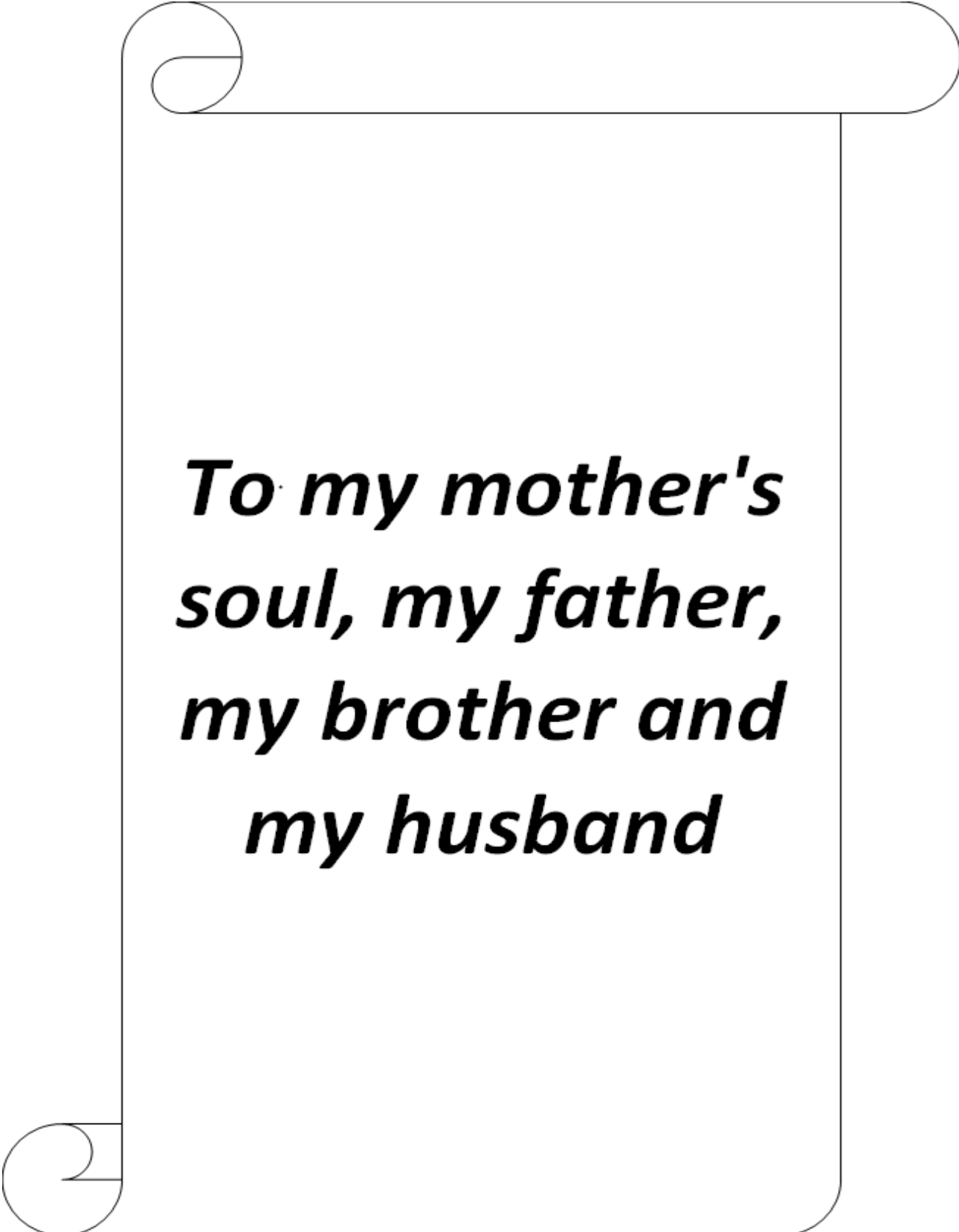
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Abstract

Untreated poultry manure/droppings were used in integrated fish ponds as organic fertilizers. This process could put an additional complexity on the bacterial load within fish's ponds ecosystem. *Arcobacter* species is one of the most important food-borne zoonotic pathogens that infect humans, animals, fish, and fowl. This study aimed to examine if raw poultry manure could enhance *arcobacter* propagation among the cohabitant Nile tilapia. In addition, the comparative phenotypic and molecular characterizations among various *Arcobacter* spp. retrieved from two diverse animal hosts (the Nile tilapia and fowl) with special reference to antibiotic-resistant and virulence genes traits were also studied. Clinically, the examined Nile tilapias exhibited darkness, fin rot, and skin hemorrhages. Internally, the Nile tilapias displayed severe congestion in internal organs, catarrhal enteritis, and swollen gall bladder. The moribund chickens exhibited mild diarrhea, anorexia, and ruffled feathers. Internally, chickens displayed enlarged spleen and liver, enteritis, and kidney congestion. The bacterial colonies on *arcobacter* selective agar appeared small and non-pigmented with an intact edge. The recovered bacterial isolates were identified as *Arcobacter* spp. depending on the phenotypic characters and PCR. Sequencing of 16S *rRNA* gene confirmed the identity of *Arcobacter butzleri* (*A. butzleri*), *A. skirrowii*, and *A. cryaerophilus* in both fish and fowl, while *A. cloacae* was confirmed in fish. PCR confirmed the occurrence of two virulence genes (*pldA* and *tlyA*) in most fish and chicken *Arcobacter* isolates. All chicken *Arcobacter* isolates showed resistance against ampicillin, ampicillin-sulbactam, and cefotaxime, and variable susceptibility to ciprofloxacin, aztreonam, imipenem, and amikacin. Fish *Arcobacter* isolates were sensitive to ciprofloxacin, sulphamethoxazole, and amikacin.

Keywords: *Arcobacter* species, Chicken, Nile tilapia, virulence genes, Egypt.



***To my mother's
soul, my father,
my brother and
my husband***

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Chapter (1)

Introduction