STUDIES ON SOME HELMINTH PARASITES OF CERTAIN FISH FROM THE ARABIAN GULF

By

KALTHAM SALEM RASHED AL KAWARI
B.Sc.
DEMONSTRATOR, DEPARTMENT OF ZOOLOGY,
FACULTY OF SCIENCE, UNIVERSITY OF QATAR

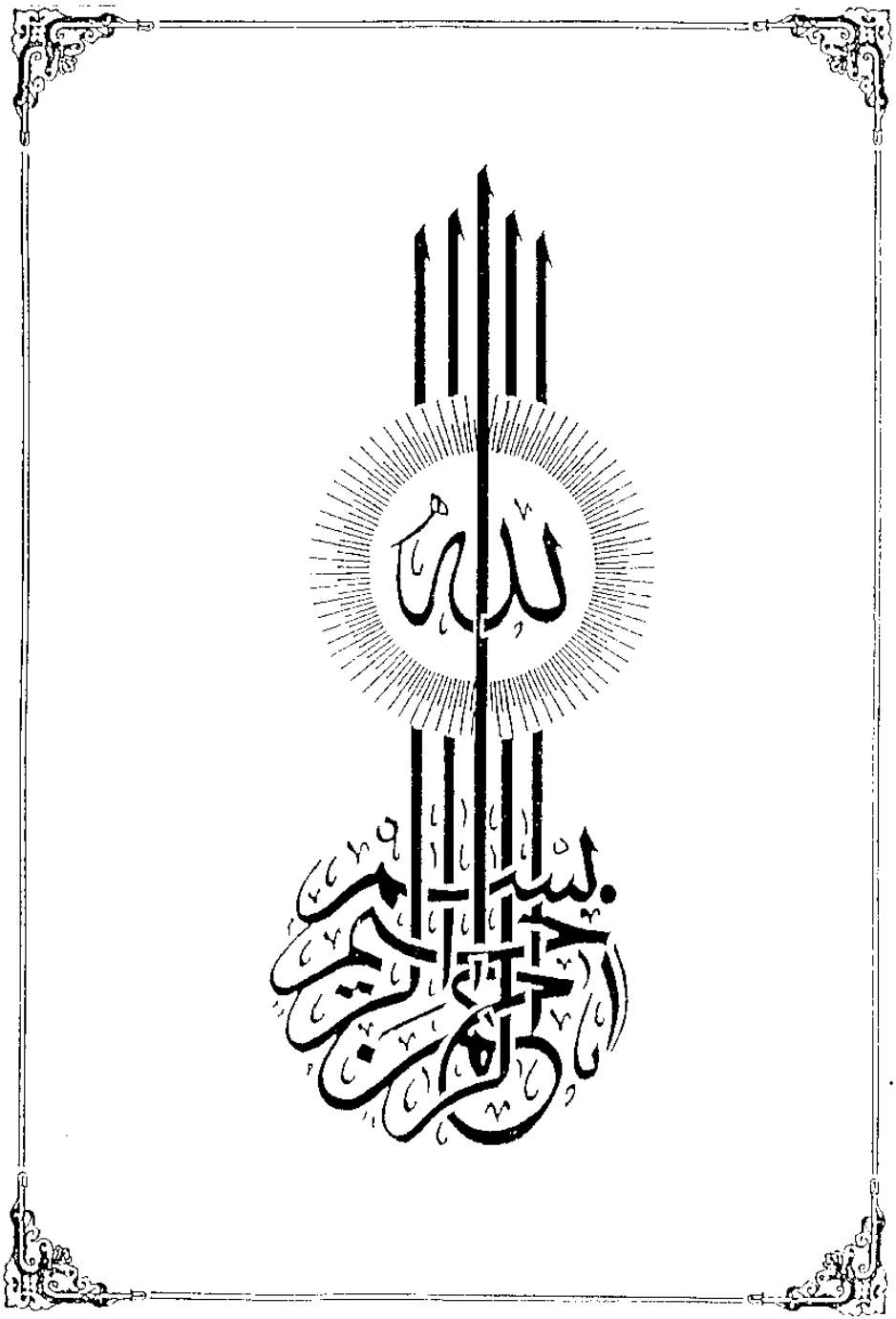
A THESIS
SUBMITTED IN PARTIAL FULFILMENT OF
THE REQUIREMENTS FOR THE AWARD OF THE
DEGREE OF MASTER OF SCIENCE

DEPARTMENT OF ZOOLOGY
FACULTY OF SCIENCE
UNIVERSITY OF AIN SHAMS
CAIRO

1 9 8 6

B I O G R A P H Y

Name	: KALTHAM SALEM RASHED AL KAWARI
Date and Place of Birth	: Qatar, 1955
Degrees Awarded	: B.Sc., Biology and Education, 1977 B.Sc., Zoology, 1979
Grade	: A (Distinction)
Present Position	: Demonstrator, Department of Zoology Faculty of Science University of Qatar
Date of Registration	: 14.11.1983



N O T E

Besides the work reported in this thesis, the candidate has attended and successfully passed the required examination in the following post-graduate courses:

1. Parasitology
2. Immunology
3. Histochemistry
4. English Language

Pofessor M.A. El-Banhawy
Chairman,
Department of Zoology,
Faculty of Science,
University of Ain Shams

ACKNOWLEDGEMENT

The writer wishes to express her deep gratitude and appreciation to Professor Mohamed Fathy A. Saoud, Professor of Parasitology, Faculty of Science, University of Ain Shams and Dean, Faculty of Science, University of Qatar for suggesting the present investigation, tutorial guidance, active supervision and for critically reading the manuscript.

Sincere thanks are also due to Professor Ibrahim A. Aboul Ela, Emeritus Professor of Zoology, Faculty of Science, University of Ain Shams, who kindly sponsored the present work, for his interest, valuable support and advice.

I am also grateful to Dr. Mostafa M. Ramadan, Associate Professor of Parasitology, Faculty of Education, University of Ain Shams, for his valuable contribution in the supervision of the work and for his constructive comments on the draft manuscript.

The writer is deeply grateful to Dr. D. Gibson, Curator of Helminths, British Museum 'Natural History' for the provision of various facilities and for his helpful advice. The courtesy of Mr. D. Claugher, Director of the Electron Microscopy Unit at the British Museum in processing material for Figs.18 and 19 is greatly appreciated.

Thanks are also due to Professor M.A. El-Banhawy, Chairman, Department of Zoology, University of Ain Shams and Professor G.M. Khalil, Head, Department of Zoology, University of Qatar for their kind encouragement.

The writer is also grateful to Mr. S.M. Ibrahim, Department of Zoology, University of Qatar for his sincere help and to Mrs. Anne De Souza for her special dedication in typing the manuscript.

The present work is supported by a scholarship from the University of Qatar.

C O N T E N T S

Page

CHAPTER III

MORPHOLOGY AND TAXONOMY OF FISH TREMATODES

GENERAL INTRODUCTION

The Arabian Gulf is an offshoot from the Indian Ocean with a surface area of approximately 226,000 km^2. The Gulf is a shallow semi-enclosed area in a highly arid climatic zone (Grasshoff, 1976).

Qatar is a peninsula, projecting towards the central part of the Gulf and located almost midway between Shatt Al Arab in the North and the Strait of Hormuz in the South (Fig. 1,A). The State of Qatar includes this mainland peninsula and a number of islands around it (Fig.1,B).

Qatari water is defined as the body of water which is within the boundaries demarkated by the State of Qatar for the 'exclusive economic zone'. The surface area of Qatari water is estimated to be about 35,000 km^2, which is about 15% of the area of the Arabian Gulf (Sivasubramaniam and Ibrahim, 1984).

The fish fauna in various parts of the Arabian Gulf has been described by various authors (White and Barwani, 1971; Kuronuma and Abe, 1972; Al-Kholy and Soloviov, 1978; Randall et al, 1978; Al Daham, 1979; Al Sedfy et al, 1982 and Sivasubramaniam and Ibrahim, 1982). Fishes of the Qatari waters belong to 136 species which are classified in 54 families of teleosts and elasmobranchs (Sivasubramaniam and Ibrahim, 1982).

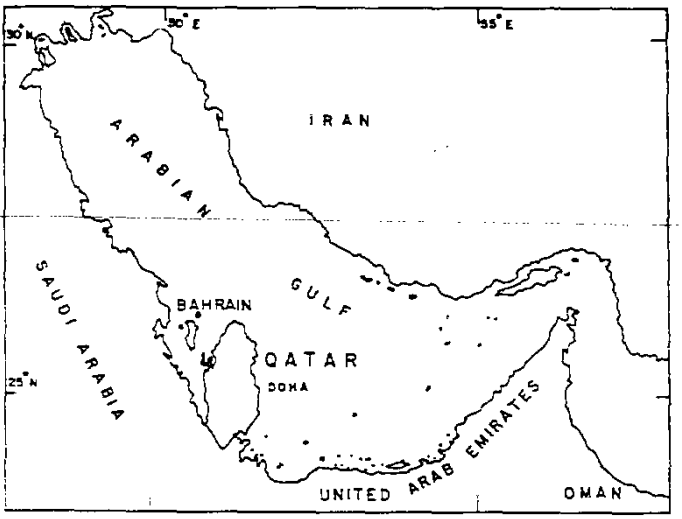


Fig. (1A)

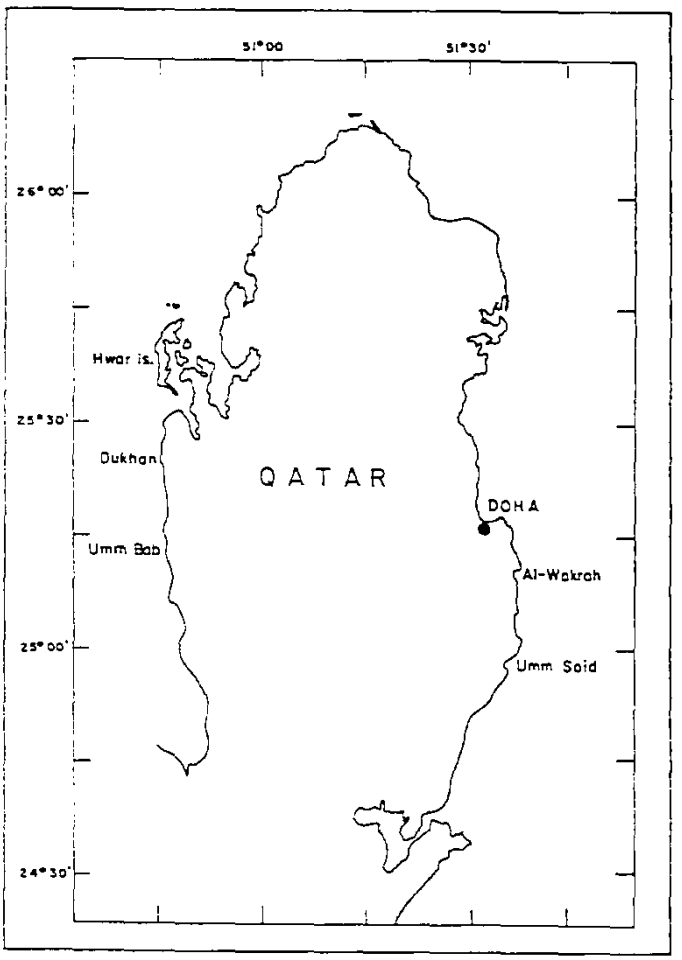


Fig. (1B)

The study of the parasites of fishes in the Arabian Gulf is very important for a number of reasons. The fish fauna of the Gulf is rich and fishes constitute a popular meal for poeple of the region. Fisheries of the Gulf are destined to play an increasingly important role as source of animal proteins for local consumption as well as for export. Nowadays it is well accepted that the development of fish resources could be enhanced through the proper study of various aspects of fish biology, including fish parasitology (Williams, 1967; Williams and Jones, 1976). Worldwide, the study of fish parasitology is recognized as an important subject in many zoological and parasitological institutes.

A survey of the available literature indicates the paucity of information on the parasites of fishes in the Arabian Gulf. Apart from a limited study on the helminth parasites of fishes from Kuwait (Al Yamany and Nahhas, 1981) nothing has been published on the parasitic fauna of fishes in this region. In contrast, several studies have been published on the parasites of fishes from a nearby region, the Red Sea, which is another important offshoot from the Indian Ocean. As early as the thirties and up to the late fifties of this century, Professor H.F. Nagaty published a series of papers on the digenetic trematodes of Red Sea fishes (Nagaty, 1936; 1937; 1941; 1942; 1948; 1954; 1956; and 1957). This was followed by some more

publications in the same field (Nagaty and Abdel Aal, 1962 - 1969) and a full recapitulation of that work has been reported by Nagaty (1973).

Saunders (1960) published the results of a general survey of blood parasites in fishes of the Red Sea. Saoud (1963) described a cestode from the Sting ray Taeniura lymma. Parukhin (1970) recorded several trematodes from the fishes of the Red Sea and Gulf of Aden. Hassan (1976) made a comprehensive study on helminth parasites, mainly cestodes of marine elasmo - branchs collected from the Egyptian coastal waters of the Mediterranean and Red Sea. Saoud, et al (1977) described a trematode parasite of a perciform fish from the Sudanese coast on the Red Sea.

Ramadan (1979) described 34 species of trematodes and cestodes from the Red Sea fishes. Ramadan (1982) described Rhagorchis manteri from a scarid fish from the Red Sea. Ramadan (1983a) decribed two species of the genus Stephanostomum from Red Sea fishes. In the same year, he revised the genus Hamacreadium with description of two species of the same genus from the Red Sea fishes (Ramadan, 1983b). The same author described trematodes of the genus Monostephanostomumn from a lethrinid fish from the Red Sea and in the same year, he revised the genus Tubulovesicula and described another species from that genus from Red Sea fishes (Ramadan, 1984a and b).

Saoud and Ramadan (1983) published a general survey on the digenetic trematodes of some Red Sea fishes. Later both authors described two trematodes of the genus Pseudoplagioporus from Red Sea fishes (Saoud and Ramadan 1984a). Moreover, they described two trematodes of the genus Pedunculacetabulum from fishes of the same region (Saoud and Ramadan, 1984b).

The main objectives of the present work include:

1. Conduction of a general survey on the helminth parasites of some common fishes from the Arabian Gulf, including the determination of the incidence of infection with trematodes, cestodes, nematodes and acanthocephala.

2. Study of the inter-relationships between members of the parasitic fauna in simultaneous double and multiple infections.

3. Study of the morphology, anatomy and classification of the digenetic trematodes collected from infected fish.

Besides augmenting our knowledge on the parasitic fauna of fishes from the Gulf, it is hoped that the results of this work may form a suitable basis for future detailed studies on the pathogenicity and other aspects of host-parasite relationships of these parasites and their hosts. Moreover, it is envisaged that these studies may eventually throw some light on the zoogeographical relationships between parasites of fishes in the Red Sea and the Arabian Gulf.

CHAPTER I

MATERIAL AND METHODS