

**Second International
Training Courses on**

Marine Molecular Taxonomy”

October 18 - 25, 2014

Mostaganem-ALGERIA



Inter-Islamic Science and Technology
Network on Oceanography, Izmir -
TURKEY



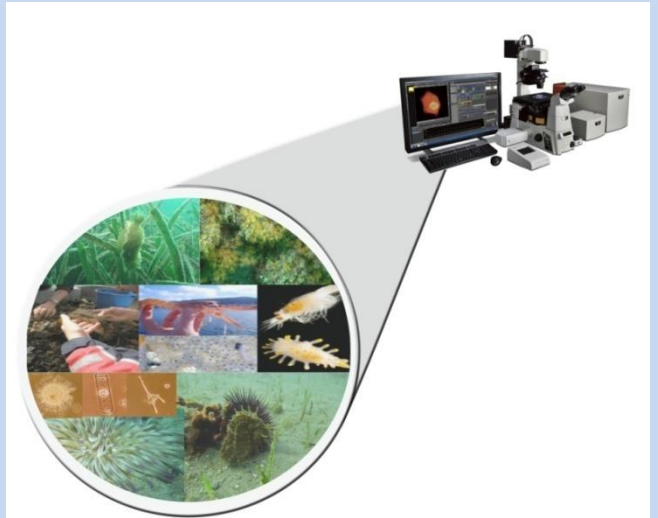
University of Abdelhamid Ibn Badis
Mostaganem - ALGERIA



University of Oran Es-Sénia- ALGERIA



National High School of Marine
Sciences & Coastal Management -
ALGERIA



AN OVERVIEW OF THE PROGRAM



Station de Biologie Marine
et Marinarium de Concarneau



University of KwaZulu-Natal-SOUTH AFRICA

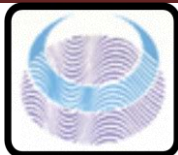


University of Annaba, ALGERIA

INOC- Mostaganem University
September 2014



IDB



Second International “Training Courses on Marine Molecular Taxonomy”

Mostaganem-ALGERIA, October 18 - 25, 2014



An Overview of the TCMMT Program

Prepared by

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MESRS, Algiers-ALGERIA.

INOC - University of Mostaganem
September 2014

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Venue of the training courses

University of Mostaganem Abdelhamid Ibn Badis
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Introduction

The working group of the international workshop on “Marine & coastal Protected Areas”, (Rabat, 23-25 March 2005) has recommended the organization of a training courses in taxonomy. The Steering committee of INOC during its eighth session meeting (Rabat, 22 March 2005), analyzing the problem of the lack of taxonomist in the INOC member countries, pointed out what follows:

- ❖ Taxonomy does not number among the priorities set for research, and students are no longer drawn by this discipline;
- ❖ Authorities dealing with conservation of biodiversity call upon universities and researchers to assist them in taxonomy. The implementation of conservation programs was affected by the lack of taxonomists.
- ❖ Absence of natural history museums in the majority of these countries which can play an important role in taxonomy and in the maintenance of reference collections.

Consequently, all INOC member countries need a generational renewal of taxonomy specialists. They need to increase their number and to provide them with a higher level of specialisation in order to manage their costal area and to carry out the Convention on Biological Diversity (CBD). In order to attain this goal, the INOC steering committee had fixed some operational objectives and had decided to organize its first training courses in the field of marine taxonomy on September 20 -23, 2010 in Istanbul and September 24 -October 1st, 2010 in Izmir-TURKEY.

In the view of the positive results obtained and the inadequacy of the number of trainees (26) formed during this first course, the majority of scientific meetings that INOC had subsequently organized after as well as the recent international colloquium on biodiversity and Coastal Ecosystem (BEL 03) which is was held from 26 to 28 November 2013 in Oran and the 4th International Congress of the Populations & Animal Communities "Dynamics & Biodiversity of the terrestrial & aquatic Ecosystems" (CIPCA 4) which was held from 19-21 November 2013, at TAGHIT (Bechar)-Algeria insisted that the INOC must renew these training courses.

1. Objective of the training courses

- **Reinforce the capacities of INOC member’s institutions in modern marine taxonomy applications.**

It is evident that the anthropogenic activities have a deleterious impact on the diversity of marine life. Indeed, it was estimated that the current rate of species extinction is at least a thousand times superior than extinction over the paleontological record; and certain model envisage even a tenfold increase if the current trend of the destruction of the habitats is not halted and reversed in the immediate future

The alarm has been sounded and the problems were mentioned on several occasions; however, this remedial process could be hampered by the absence of adequate materials and manpower in particular, taxonomists, who are called upon to provided the necessary information in view of preserving this world heritage.

The absence or the insufficiency of exact information and documentation on natural resources and biodiversity in the Islamic world are partially due to the absence of dedicated resources. More

than at any time there is a call to rectify this state of affairs and follow-up on the guidelines of the world initiative on taxonomy within the context of the Convention of Biodiversity. Thus it becomes imperative to fill in the knowledge gaps, train more taxonomists and museum curators.

The majority of member countries of the Organisation of Islamic Conference (OIC) are maritime states bordering the Atlantic coast of north-west Africa, the eastern and southern coast of the Mediterranean Sea, the Red Sea, North Arabian Sea need to dedicate more resources and train the taxonomists of the future. It is important that targeted action follows international directives and protocols to which many of these countries are signatories.

The theoretical discussions will be followed by a field trip on board a research vessel.

- (I) The principal objective of this training is to establish a theoretical basis for contemporary taxonomy. This is expected to raise the regional awareness of biodiversity and the role of taxonomy in general.
- (II) Answer to the engagement of OIC member countries to the CBD program on Taxonomic research.

It is proposed in this module the forward setting of:

- The engagement of the IOC countries in the development of the phase “National Study on the Biodiversity”;
- The engagement of the OIC countries in the installation of a “strategy and an national action plan for the conservation and the durable use of the biodiversity”;
- At which points these strategies and action plans were implemented and contributed to the safeguarding of the biodiversity to the national scales;
- Degree of engagement of these countries in the development of the optional ratios on the protected areas,
- Degree of engagement of the various countries in the development of the ratio on taxonomy;
- The installation of a Focal Point on the taxonomy and the activities undertaken by these countries;
- The degree of the engagement of the different IOC countries in the implementation from convention on biological diversity (signature, ratification, dates of signature/ratification);

Training Courses on Marine Molecular Taxonomy”

Timetable

Thursday 16/10/2014: Flight Arrival to Algiers Airport

All the day

Arrival at Algiers airport (lecturers and trainees), time depend of fly schedule
Transportation to El Marsa hotel – Sidi Fredj-Algiers

Friday 17/10/2014: Departure to Mostaganem

08:00 -11:00

Arrival at Algiers airport of the latecomers

13 :00 - 13 :30

Departure to Mostaganem by bus: lecturers and trainees will gather at El Marsa hotel for transportation to Mostaganem

17:30- 18:00

Arrival to Mostaganem, arrangement of accommodation for participants at Hotel Murustaga , Hotel el Mountazah and Hotel Palacio (Mostaganem)

Friday 17/10/2014- Flight Arrival to Oran Airport

08:00- 18:00

Arrival at Oran airport of the comelaters

Saturday 18/10/2014

08:00 – 09:00

Registration at auditorium site II (ex INES de Chimie)

09:00 – 10:10

Opening:

a. Welcome, Technical and practical information:

✚ Prof. Dr. Mostefa BELHAKEM, Rector of Abdelhamid Ibn Badis University, Mostaganem- ALGERIA;

✚ Prof. Dr. Orhan USLU, President of INOC, Izmir- TURKEY

b. Technical and practical information, Background, Goals of the course:

✚ Prof. Dr. Abdelouahab CHOUIKHI, Executive Director of INOC, Izmir- TURKEY

c. Content of the course & Presentation of the program:

✚ Dr. Karim MEZALI, Coordinator of the course, Lecturer & Researcher (Prof.) at Abdelhamid Ibn Badis University, Mostaganem- ALGERIA

d. Presentation of participants and Lecturers

10:10-10:30

Coffee break

10:30 -11:10

Conference 1: Introduction to the course: the extent of biodiversity: how many marine species in Mediterranean Sea? : The case of Algerian basin: **Prof. Z. BOUTIBA**

11:10 -12:10

Conference 2: Principles of zoological nomenclature and training tomorrow taxonomists. **Prof. A. Kerr**

12:10 -12:30




Questions & answers of the participants

12: 30 -14:00

	Lunch
14 :00- 16:00	Lecture and practical work 1 (the two groups): Sampling methods and conservation of marine animal for their morphological and anatomic description: Prof. A. THANDAR & Dr. K. MEZALI (for marine animals) For the practical work all the speaker could intervene depend on their research axis (animals/ plant)
16:00 -16: 20	
	Coffee break
16: 20 -18:20	Lecture and practical work 2 (the two groups): Sampling methods (marine animal and plant tissues) for their molecular studies (DNA extraction, etc...): Prof. A. KERR; Prof. L. CHAOUI; Dr. K. MEZALI (for animals) Application on Animal (invertebrates) samples provided by ENSSMAL & CNRDPA
20:00	Dinner
Sunday 19/10/2014	
09:00 - 09:40	Conference 3: The Theory of Phylogenetic Reconstruction: Phenetic, cladistic and Bayesian methods. Prof. A. KERR,
09:40 - 10:20	Conference 4: Use of bioinformatics in taxonomy, data bases. Dr A. MAURADY Questions & answers of the participants
10:20 - 10:40	Coffee break
10:40 - 11:30	Conference 5: Methods of DNA sequencing and molecular markers used in molecular taxonomy. Prof. Igor EECKHAUT
11:30–12:20	Conference 6: Phylogenetic Inference Methods: distance methods, optimality criterion methods (parsimony and maximum likelihood) and bootstrap. Prof. Igor EECKHAUT
12:20– 12:30	Questions & answers of the participants
12:20 - 14:00	Lunch
14:00- 16:00	Practical work with case example (group II advanced & group I beginner in same time and in separate rooms): <ul style="list-style-type: none"> • Lecture with case example (group II advanced): Phylogenetic Inference Methods: distance methods, optimality criterion methods (parsimony and maximum likelihood) and bootstrap. Prof. Igor EECKHAUT • Practical work (group I: beginners): Localization of DNA sequence - sequence formats; Methods of DNA sequences cleaning, etc... Prof.A. MAURADY
16:00– 16:20	Coffee break
16:20– 18:20	Practical work with case example (group II advanced & group I beginner in same time and in separate rooms): <ul style="list-style-type: none"> • Practical work (group II: advanced): Phylogenetic tree construction method: Application: distance method, Bayesian, etc.... Prof. Igor EECKHAUT • Practical work (group I: beginners): Searching of DNA and protein databases using BLAST and other search engines

	such as GENBANK, etc...). Prof. A. MAURADY & Prof. K. MEZALI
20:00	Dinner
Monday 20/10/2014	
09:00 - 09:40	Conference 7: The DNA-bar-coding as a tool for taxonomic expertise and the international organizations and initiatives for molecular bar-coding. Dr. M. C. MALAY
09:40– 10:20	Conference 8: Type species and cryptic species: from the molecular taxonomy to the nomenclature. Dr. M. C. MALAY
10:20 - 10:30	Questions & answers of the participants
10:30 - 10:50	Coffee break
10:50– 11:30	Conference 9: Morphological characters used in traditional taxonomy/ systematic: case of marine invertebrates. Prof. Ahmed THANDAR
11:30– 12:10	Conference 10: Integrative taxonomy, some examples in echinoderms (sea cucumbers). Prof. Ahmed THANDAR
12:10– 12:20	Questions & answers of the participants
12:20-14:00	Lunch
14:00– 16:00	<p>Practical work with case example (group II advanced & group I beginner in same time and in different rooms):</p> <ul style="list-style-type: none"> • Practical work (group I: beginners): How to use "BOLD" and GENBANK (to find the species names from DNA sequence based on free databases available on the net? Prof. Igor EECKHAUT, Dr. K. MEZALI & Dr. M. C. MALAY • Practical work (group II: advanced): The relationships between the different types of phylogenetic estimation and how the likelihoods and probabilities are computed under different models of evolutionary change. Introduction of basic probability and its relation to likelihood and Bayesian theory. Prof. A. KERR & Prof. Igor EECKHAUT
16:00– 16:20	Coffee break
16:20-18:20	Practical work (group 2 advanced; group 1 beginners can attend): application of the acquired methods on data collected by each participant during his research work (<i>the participant to the courses will bring its own data to process</i>).
20:00	Dinner
Tuesday 21/10/2014	
09:00– 09:30	<p>Lecturers: Evolution, Diversity and Development: Marine invertebrates, Fishes and phytoplankton</p> <p>Conference 11: The integrative taxonomy: case of marine invertebrates. Example: coral reef species. Dr. M. C. MALAY</p>

09:30– 10:00	Conference 12: "Habitat-dependent molecular markers (Sea, Lagoon) in fish. ». Prof. L. CHAOUI
10:00– 10:30	Conference 13: The integrative taxonomy: case of marines' fish parasites. Dr. D. MERZOUG
10:30– 11:30	Practical work: Elements of identification of marines' fish parasites. Dr D. MERZOUG
11:30 - 11:40	Coffee break
11:40 - 12:20	Conference 14 (part 1): The integrative taxonomy: case of marine algae. Prof. M. ABOUD ABI SAAB
12:20– 13:00	Conference 15 (part 2): The integrative taxonomy: case of phytoplankton. Prof. M. ABOUD ABI SAAB
13:00-14:00	Lunch
14:00-15:30	Lecturer and Practical work (the two groups): Sampling methods and conservation of marine algae species for their morphological and anatomic description: Prof. M. ABOUD ABI SAAB
15:30– 18:20	Guided tour to the touristic and historic sites of Mostaganem (Ouillis, Bousquet, Ain Brahim coastal beaches and Mausoleum of Sidi Lakhdar (a sixteenth century Algerian poet). Guided tour to the touristic and historic sites of Mostaganem (Stidia, Tidjdit, Mazaghan)
	Coffee break and test of local products
20:00	Dinner
Wednesday 22/10/2014	
09:00 - 09:40	Conference 16: Tools of molecular phylogeny. Dr. Françoise DENIS
09:40– 10:20	Conference 17: Phylogeography: analysis of intraspecific genetic variability under geographical characteristics. Dr. Françoise DENIS
10:20 - 10:30	Questions & answers of the participants
10:30 - 10:50	Coffee break
10:50– 11:30	Conference 18: Super tree construction by combining data from smaller phylogenies. Prof. A. KERR
11:30– 12:10	Conference 19: Comparative evolutionary methods to make statistical inferences about ancestral state reconstruction and calculating speciation rates. Prof. A. KERR
12:10-12:20	Questions & answers of the participants
12:20-14:00	Lunch
14:00–16:00	Practical work with case example (group II advanced & group I beginner in same time and in separate rooms): <ul style="list-style-type: none"> • Practical work for group I (beginners): Localization of DNA sequence - sequence

	<p>formats Dr A. MAURADY</p> <ul style="list-style-type: none"> • Practical work for the groups II: The importance of building large trees and how it is done. Prof. A. KERR & Dr. M. C. Malay
	Coffee break
	<p>Practical work with case example (group II advanced & group I beginner in same time and in separate rooms):</p>
16:00–16:20	<ul style="list-style-type: none"> • Practical work for group I (beginners): Methods of DNA sequences cleaning, etc... Dr A. MAURADY
16:20-18:20	<ul style="list-style-type: none"> • Practical work for the groups II: Application of molecular markers (mitochondrial DNA) to fish phylogeography study. Prof. L. CHAOUI
20:00	Dinner
Thursday 23/10/2014	
09:00- 10:30	<p>Practical work for the two groups: Marine invertebrates: Elements of identification of sea cucumber species using the endoskeleton criterion (ossicles). Prof. Ahmed THANDAR & K. MEZALI</p>
10:30- 10:50	Coffee break
10:50- 13:30	<p>Practical work (group 1 & 2) (suite): Phytoplankton: Elements of identification. Prof. M. ABBOD ABIS SAAB.</p>
12:20-14:00	Lunch
14:00– 16:00	<p>Workshop: Prof. KERR ; Dr. MALAY ; Dr. DENIS ; Dr. MAURADY ; Dr. EECKHAUT; Dr. MEZALI .</p> <p>Trainees from Group II who have skills in the field of molecular systematic can present an oral presentation on a topic of their axis research in molecular systematic (or tools applied to the determination of the species) which will enable them to address and discuss their research works with the lecturers (table round questions and answers) 5 presentations will be selected from this group.</p>
16 – 16:20	Coffee break
16:20-18:20	<p>Workshop (cont.)</p> <p>Trainees from Group I can also submit their research work and submit to the lecturer's problems they encounter. A selection of 5 papers will be made so that they present them</p> <p> Presentation of awards: 03 certificates of excellence for the best oral presentations.</p>
20:00	Dinner
Friday 24/10/2010	
06:00 - 13:00	<p>Practical Works on Research Vessel "Ms Benyahia". Sampling (in- situ approaches) & Visit of a Marine Protected area (Habibas Island).</p> <p>Prof. KERR; Dr. MALAY ; Prof. THANDAR ; Dr. DENIS ; Prof. EECKHAUT; Dr. MEZALI</p>
13:00 -14:00	Lunch on vessel
14:00– 18:30	<p> Drafting of a scientific article in taxonomy ; Assembly of a project with Prof. KERR; Dr. MALAY ; Prof. THANDAR ; Dr. DENIS ; Prof. EECKHAUT; Dr. MEZALI</p> <p> Discussion of the problems with regard to the conservation of the biodiversity.</p>

	Requirements in Reinforcement for the capacities; Installation of a network of taxonomists
	+ Distribution of the certificates of participation to the trainees.
	Closing session
	+ Prof. Mostefa BELHAKEM + Prof. O. USLU; + Prof. A. CHOUIKHI
20:00	Diner offers by the University
Saturday 25/10/2014	
Departure to Algiers (ENSSMAL bus)	

Syllabus of the lectures

- **Prof. Ahmed S. THANDAR**

Conference 1: Morphological characters

Taxonomy is as old as man himself. Expert taxonomists, however, now compare kinds of organisms and attempt to integrate a large number of similar taxonomic characters to arrive at a logical classification. A taxonomic character is any attribute of a member of a taxon (morphological, genetic, physiological, biochemical, etc.) by which it differs or may differ from a member of another taxon. Mayr states that characters are either adaptive or of high selective value or non-adaptive or of no or little selective value. Adaptive characters are subject to ecological variations and hence are not good for taxonomic purposes. Non-adaptive characters are excellent to use in taxonomic research since they do not fluctuate with the environment. It is best to define taxonomic characters in terms of the phenotype since variation of the genotype is difficult to study and does not lend itself in the field, in long-preserved animals and in fossils. Phenotypic characters are secondary indicators of variations in the genotype and hence indicate different genetic constitutions. They are variations in the morphology of organisms or their developmental stages and are therefore morphological characters. These are best to use as they are easily perceived, have low variability and usually present in preserved animals and in fossils. They can be divided into external and internal morphological characters. External morphological characters can be further divided into qualitative and quantitative characters – the former are descriptive while the latter measurable and hence more accurate. Internal anatomy provides abundant taxonomic characters in practically all higher animals but the degree to which they are used vary from group to group, generally in inverse ratio to abundance and usefulness of easily observable external morphological characters. They usually characterise higher taxa. The most important external and internal morphological characters will be closely examined with reference to sea cucumbers (holothuroid echinoderms).

Conference 2: Integrative taxonomy

Delineating species boundaries correctly is crucial to the discovery of biodiversity because it determines whether or not different organisms are members of the same taxon. Since 1970's traditional taxonomy has been increasingly complemented with contributions from molecular biology to delimit species boundaries but despite this there are still gaps in communication between different disciplines currently involved in delimiting species. Because of this Dayrat (2005) proposed that taxonomy should become more integrative for the betterment of its own future. He defines 'integrative taxonomy' as the science that aims to delimit the units of life's diversity from multiple and complementary perspectives (morphology, molecular biology, ethology, etc.). Hence he demands a radical change in mentality concerning the creation of names in order to prevent an over-abundance of synonyms and *nomina dubia* (names of doubtful application) from worsening. Several guidelines proposed by him will be critically examined. Integrative taxonomy recognizes cases when species are supported by broad biological evidence and therefore deserving of an official name. The typological approach of delineating species currently used in traditional taxonomy is regarded as no longer sufficient. There is therefore a desperate need to combine various fields to delimit species and not just employ one field in preference of the other. One system or the other may be favoured for particular cases depending on the results it provides, but they can also be used concurrently. This does not mean that morphospecies (morphologically defined species) are not discrete species but according to integrative taxonomists they should be treated as just hypotheses until tested

by other means. Many workers have successfully adopted an integrative approach to taxonomy and unravelled numerous cryptic species and/or have demonstrated cases with high intra- and interspecific morphological variations.

- **Dr. Alexander KERR**

Lecture 1: The Theory of Phylogenetic Reconstruction

In this lecture I will discuss the relationships between the different types of phylogenetic estimation and how the likelihoods and probabilities are computed under different models of evolutionary change. I will introduce basic probability and its relation to likelihood and Bayesian theory. This will probably be best given towards the beginning of the course. (See attached outline of proposed lecture.)

Lecture 2: Supertree construction.

Supertrees are phylogenies constructed by combining data from smaller phylogenies. In this lecture, I will discuss the importance of building large trees and how it is done. (For example, see attached paper Kerr 2005)

Lecture 3: Comparative evolutionary methods.

In this lecture, I show some of the things that one can do with phylogenies by demonstrating some of the comparative evolutionary methods to make statistical inferences about ancestral state reconstruction; calculating speciation rates, etc. (For example, see attached paper Kerr, Baird & Hughes 2010).

- **Prof. Amal MAURADY**

Conference: Use of bioinformatics in taxonomy, data bases.

Part 1. An Over view of Bioinformatics Tools and resources. The use of sequence comparison and homology to find similarities and differences between bases or residues of two or more sequences in order to infer structural, functional or evolutionary relationship.

Part 2. There are a growing number of species with complete genomes in GenBank, the vast majority of species is in Entrez Taxonomy database. The NCBI Taxonomy Database includes names and classifications for all of the organisms that are represented in the protein and sequence databases.

Practical work for group I (beginners): Prof. A. MAURADY

Exploring the DNA sequence tools and databases at NCBI and EBI. Retrieving a DNA sequence; sequence formats; Quick Text Search.

Practical work (group I: beginners): Prof. Igor EECKHAUT & Prof. A. MAURADY

The Basic Local Alignment Search Tool (BLAST) finds regions of local similarity between sequences and compares nucleotide or protein sequences to sequence databases and calculates the statistical significance of matches. BLAST can be used to infer functional and evolutionary relationships between sequences as well as help identify members of gene families.

Practical: Searching of DNA and protein databases using BLAST and other search engines such as GENBANK, etc...).

- **Dr. Douniazed MERZOUG**

Studies on fish parasites have been addressed by different issues, including species of parasites composition, host spectrum, life cycles, distribution and potential pathogenetic of fish parasites. For monitoring and understanding all these shutters of fish parasites, the taxonomic approach must be tackled.

The course is based on keys identification of fish parasites. The main objective is to provide basic information on the principles of fish parasitology and helminthology, with focus given to morphological characteristics of following groups: Monogenea, Trematoda, Cestoda, Nematoda, Acanthocephala, Arthropoda. Also some keys of diagnosis are compiled to provide guides for identification of fishes parasites based on their morphology. We will use the characteristics shared by many taxa and resulting from special adaptations to a parasitic way of life. Such as specific adaptations are discussed in the various sections on parasite groups

Furthermore, some knowledge bases are presented in this course on phylogenetic relationships indicated by DNA sequencing witch offer also the best chance of meaningful results but are not always accompanied by morphological characters useful for identification. Where there is no congruence between schemes of classification based on morphology and those based on molecules.

- **Dr. Francoise DENIS**

Tools of molecular phylogeny

The objective of this lesson is to become familiar with the different concepts of phylogeny. It is an approach to acquire methodology of sequence analysis to find the relationship between the target groups. After having introduced the basic concepts that support the phylogenic construction, the methods of establishment of the trees will be presented. This approach will define the essential elements of the vocabulary of phylogeny. In a 3rd part, the main schools of phylogeny, phenetic, cladistic and probabilistic, will be developed to highlight their connections and their respective contributions in the evolution of the concept of phylogeny. The application of these notions to the field of phylogenetic analysis will be finally exposed.

Phylogeography: analysis of intraspecific genetic variability under geographical characteristics

The objective of this lesson is to introduce the methods and the tools of phylogenetic analysis to understand the impact of environmental characteristics on the genetic structure of a metapopulation. These tools are used to connect the intraspecific genetic structure with the geographical position of each population and to understand the role of environmental factors on the organization of genetic diversity at the intra-specific level. This approach seeks to identify the elements of genetic diversity that have been and/or are influenced by environmental characteristics and which led to the organization currently observed. Using examples from the scientific literature, the relevance of the concept of phylogeography will be demonstrated both in a framework of basic science but also in the context of applied sciences in the management and conservation of biological resources

- **Dr. Igor EECKHAUT**

First lecture: Methods of DNA sequencing and molecular markers used in molecular taxonomy.

Sequencing is the process of determining the precise order of nucleotides within a DNA molecule (or alternatively a RNA molecule).DNA sequencing is used to determine the sequence of individual genes, larger genetic regions or entire genomes. Knowledge of DNA sequences has become

indispensable for basic biological researches, and in numerous applied fields such as biotechnology, forensic biology, and biological systematics.

The first part of this lecture will present the various sequencing methods including two-dimensional chromatography and fluorescence-based methods. It will detail the theory for understanding basic PCR, Sanger sequencing method and pyrosequencing methodology. The second part of the lecture will show molecular markers used in molecular phylogeny in order to resolve specific questions: microsatellites, fast and slow evolving genes (nuclear versus mitochondrial genes), sequences retrieved by the use of “cloning+ sequencing” method or by pyrosequencing. The theory will be illustrated by research cases studied in our laboratory: (i) identification of marine species that are difficult to identify with traditional taxonomic methods (myzostomids and crinoids from various oceans, corals from Madagascar), (ii) bacteria from the sediment and the digestive tube of sea cucumbers obtained by cloning and (iii) microbial communities associated with coral samples explored using 16S-targeted DNA pyrosequencing or sequencing by synthesis.

Second lecture: Phylogenetic Inference Methods: distance methods, optimality criterion methods (parsimony and maximum likelihood) and bootstrap.

The basics of distance methods and optimality criterion methods (parsimony and maximum likelihood) will be exposed in this lecture. Distance methods start from a DNA character matrix that is converted by a chosen mathematical formula into a distance matrix. Algorithms (e.g. UPGMA, NJ) are applied to the distance matrix to generate one single tree. Optimality criterion methods differ from distance methods in generating all the possible trees (exact searches) or a lot of possible trees supposed to be the best (heuristic searches). All generated trees are evaluated under the chosen optimality criterion, either maximum parsimony or maximum likelihood. The best trees under the maximum parsimony criterion will be those that generate the less evolutionary steps (the less DNA changes), the ones under the maximum likelihood criterion will be those that fit the best the DNA data under a chosen model of evolution. Optimality criterion methods are time consuming but allow evaluating alternative tree topologies. To estimate the robustness of the clades in the trees, bootstrap values obtained by a resampling method are commonly used. All the described methods will be illustrated through real research cases studied in our laboratory

• **Prof. Lamia CHAOUI**

Conference: Habitat dependent selection (Sea lagoon) on genetic markers. Case of some fish species of the Mediterranean

Genetic basis and evolutionary implications of local genes adaptation in marine organisms with high gene flow are still poorly understood. For several species of fishes in the Mediterranean, alternative migration patterns exist between individuals entrants in coastal lagoons that provide favorable conditions for growth and those that remain in sea, where environmental conditions are less prone to rapid changes and stress. The lagoon environment differs from the open sea by several characteristics (physical, chemical, trophic and biotic).

The question of adaptive mechanisms imposed on species that use both types of environments remains an open question, whether physiological origin (individual plasticity) or genetic (selective survival). All these dissimilarities will impose selective pressures on fishes attending the lagoons at some point in their life cycle. These selection pressures will favor individuals carrying specific alleles in different lagoons depending on the existing differential selection between sea and lagoon habitats (Allegrucci *et al*, 1997. Lemaire *et al*, 2000. Chaoui *et al*, 2012.) or, more generally,

between marine and coastal habitats (Planes and Romans, 2004; Coyer et al, 2011; Guinand *et al*, 2011; Gagnaire *et al*, 2012.). This passage in the lagoon environment therefore acts as a selective filter, favoring some genotypes over others, thus generating high levels of genetic differentiation between lagoon and marine individuals.

In our presentation, we will discuss some examples, such as sea bream *Sparus aurata* where it was recently shown a difference in allelic frequencies between marine and lagoon individuals for microsatellite loci linked to candidate genes, such as prolactin (role in 'osmoregulation) and growth hormone (role in the growth and also involved in osmoregulation) (Chaoui *et al.*, 2012). An association between allele size and habitat type was also found in this case. This adaptive signatures found in sea bream is supported by the significant results, more and more numerous in fish related to differentiation type sea-lagoon, always on the locus associated with prolactin (Streelman and Kocher, 2002; Agnese and al, 2008. Blel *et al*, 2010) or growth hormone (Tao and Boulding, 2003. De-Santis and Jerry, 2007, Zhang *et al*, 2009. Shimada et al, 2010)

- **Dr. M. MALAY**

Conference 1: The DNA barcoding as a tool for taxonomic expertise and the international organizations and initiatives for molecular barcoding

Eleven years have passed since Hebert and colleagues advocated the use of the mitochondrial COI gene as a “molecular barcode” for rapid and reliable species identification. Since then, DNA barcoding has become a popular (if somewhat controversial) tool for species identification and species discovery. I will introduce the concept of DNA barcoding and discuss the strengths as well as the limitations of a barcoding approach to taxonomy. The lecture will end with a brief discussion of ongoing large-scale DNA barcoding initiatives.

Conference 2: Type species and cryptic species: from molecular taxonomy to the nomenclature

DNA sequencing offers a wealth of novel information to the modern researcher, but then one has to decide how to deal with all the new data. The researcher may discover that what was considered to be a single morpho-species is actually comprised of several genetically distinct entities. Do the genetic differences imply the presence of cryptic species, or something else? How does one decide when a new species should be named? These questions and related issues will be discussed in this lecture.

Lecture 3: The integrative taxonomy: case of marine invertebrates. Example: Coral reef species

Coral reefs comprise the most biologically diverse ecosystems in the sea, and yet much of this diversity remains unknown and undescribed. Increasingly, taxonomists are employing multidisciplinary approaches and modern tools to tackle old problems in taxonomy and systematic. I will be discussing some examples of how an integrative approach to taxonomy is accelerating species discovery in coral reefs.

- **Pr. Marie Abboud - Abi Saab**

Lecture & Laboratory works : Elements of identification

The objective of the 2 lectures is to provide an updated theoretical background for the morphology, taxonomy, classification and phylogeny of the most important phytoplankton groups (Diatoms, Dinoflagellates and Marine Flagellates) and to teach methods and criteria for correct species identification. Details will focus on: general characteristics, life cycle, Morphology and terminology, recent classification, general cell terms, characters used in identifying genera...with

illustration). Species of Special Interest (Coccolithophorids, toxic and potentially toxic species. etc). Principal Identification Manuals. Interesting sites.

- Prof. Zitouni BOUTIBA

Conference: The extent of biodiversity: how many marine species in Mediterranean Sea? The case of Algerian basin

Referring to the lack of updated inventories, the current state of knowledge on marine biodiversity remains, in general, always subjective because it fluctuates depending on the time.

The Algerian coastline, offers a variable morphological structure and tormented, with a very rugged continental shelf and overall strong slope. The diversity of biotopes gives them a reservoir of an impressive marine fauna wealth.

On the basis of estimates identified bibliographic documents, there is a weakness of reliable scientific work demonstrating an ignorance of existing taxa in Algeria. Recently, a synthetic study conducted by a multidisciplinary team (biologists and geomorphologists) could provide a basis for national reference with a strong and fairly comprehensive diagnosis confirming the presence of a procession diversified species in the Algerian basin level.

In this study are quoted the most emblematic plant species such as macroalgae *Cystoceira algeriensis*, *Cystoceira amentacea*, *Laminaria*, *Goniolithon byssoides*, *Corallina elongata* and *Lithohyllum lichenoides*, the seagrass *Posidonia oceanica*, *Cymodosea nodosa*, *Zostera marina* and *Zostera noltii*.

Remarkable benthic fauna is represented by the echinoderms *Centrostephanus longispinus* (Sea Urchin DIAdem), *Paracentrotus lividus* (edible Sea Urchin) molluscs *Patella ferruginea* (giant limpet), *Pinna nobilis* (large mother-of-Pearl), *Pinna pernula* (*Pinna rudis*) (thorny shell), *Lithophaga lithophaga*, the crustaceans *Homarus gammarus* (European lobster), *Maja squinado* (Sea spider), *Palinurus elephas* (common spiny lobster), *Scyllarides latus* (large sea cicada).

Listed Ichthyofauna is composed of 57 species of Chondrichthyans (sharks & rays) in 21 families and nearly 300 species of Osteichthyes belonging to 72 families.

Among the seven herpethologic species present in the Mediterranean, we have the two turtles inhabit Algerian marine waters: *Caretta caretta* (loggerhead turtle), *Dermochelys coriacea* (leatherback turtle), and ornithological fauna with representatives *Larus audouinii* (Audouin's), Falcon eleonora (Eleanor Falcon), *Phalacrocorax aristotelis* (shag), *Egretta garzetta* (little egret), *Calonectris diomedea* (Cory's Shearwater), *Sylvia melanocephala* (sardinian warbler) & *Upupa epops* (crested hoopoe).

For marine mammals, 13 species of cetaceans have been identified and pinniped *Monachus monachus* (monk seal), once abundant along the Algerian coast, is more observed since 2000.

Furthermore, according to the authors of this study, marine biological diversity known to the Algerian basin scale, amounts to 4150 species that fall into 950 genera and 761 families.

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Position held: Emeritus Professor, School of life Sciences,

School responsibilities: Research and training of postgraduate students

Research interests: Taxonomy, biogeography and reproductive biology of holothuroid echinoderms (sea cucumbers)

Job History at University of Durban-Westville

- 1967-71 - Junior Lecturer - Lecturer in Zoology
- 1979-85 - Administrative Head of Biology
- 1985-90 - Senior Lecturer & Associate Professor in Zoology
- 1991-2001 - Professor and Head of Department of Zoology
- 2002 - Management Support: Professional Academic Assistant
- 2003 to Date - Professor Emeritus: Life Sciences: Univ. KwaZulu-Natal

Awards and Honours and other accomplishments

- Professor Emeritus Awards (Honorarium) – NRF-IRDP, 2003-2005.
- Listed in Marqui’s Who’s Who, 15th edition
- Have three taxa named after me (Genus Thandarum Martinez 2010 and two species: *Leptochiton thandari* Sirenko and *Pseudocnus thandari* Natasen Moodley)
- I have this far described alone or with my collaborators 70 new taxa including TWO families and 15 Genera and 54 species.

Abbreviated Service to University Community at Durban-Westville

1990- 2002 - Served on Senate and Council of University

Didactic Profile

- Taught at all levels (1st year to Honours) on the following courses/topics: Protozoa, Platyhelminthes, Nemertea, Nematoda, Mollusca, Echinodermata, Hemichordata, Chordata, Protostome Embryology, Parasitology, Marine Biology, Taxonomy, Evolution, Invertebrate Phylogeny
- Had numerous invitations to act as external examiner.
- Supervised and co-supervised several M.Sc. dissertations and PhD thesis.

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- Bolton, J.J., Coppejans, E., Anderson, R.J., De Klerck, O., Samyn, Y., Leliaert, F. & Thandar, A.S. 2001. Biodiversity of seaweeds and echinoderms in the western Indian Ocean. *South African Journal of Science*. 97 (11/12):453-454.
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- Samyn, Y. & Thandar, A.S. 2003. *Massinium*, a new genus in the family Phyllophoridae (Echinodermata: Holothuroidea: Dendrochirotida) with description of a new south-west Indian Ocean species *Massinium maculosum*. *Belgian Journal Zoology*. 133: 137–144.
- Samyn, Y. & Thandar, A.S. 2003. Towards an understanding of the shallow-water echinoderm biodiversity of KwaZulu-Natal, Republic of South Africa. Pp 41-47. In: *ECHINODERM RESEARCH 2001:*

Proceedings of the 6th European Conference on echinoderm Research, Banyuls-Sur-Mer, 3-7 September 2001 (Féral, J.-P. & David, B eds.) Balkema, Rotterdam

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- Thandar, A.S. & Dunlevey, S.N. 2004. Variations in the form of the spicules within different regions of the introvert of dendrochirotid holothuroids. Pp. 557-561. In: ECHINODERMS: MUENCHEN. PROCEEDINGS OF THE 11TH INTERNATIONAL ECHINODERM CONFERENCE, MUNICH, GERMANY, 6-10 OCTOBER 2003. (Heinzeller, T., & Nebelsick, J.H., eds.). Taylor & Francis, London. 633 pps.
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- Thandar, A.S. 2008. Additions to the holothuroid fauna of the southern African temperate faunistic provinces, with descriptions of new species. *Zootaxa* 1697: 1-57.
- Thandar, A.S. 2009. New species and a new record of sea cucumbers from deep waters of the South African temperate region. *Zootaxa*: 2013:30-42.
- Samyn, Y., Thandar, A.S. & van den Spiegel, D. 2010. Two new species in the phylloporid genus *Massinium* (Echinodermata:Holothuroidea) with redescription of *Massinium magnum*. *Zootaxa* 2399:1-19.
- Samyn, Y., Kerr, A. O’Loughlin, M., Massin, C., Pawson, D. L., Rowe, F.W.E. Smiley, S., Solis-Marin, F., Thandar, A.S., Vanden Spiegel, D. & Paulay, G. 2010. Using sea cucumbers to illustrate the basics of zoological nomenclature. *Beche-de-mer Bulletin* 30:33-40.
- Thandar, A.S., Zettler, M. & Arumugam, P. 2010 Additions to the sea cucumber fauna of Namibia and Angola, with descriptions of new taxa (Echinodermata:Holothuroidea). *Zootaxa* 2655:1-24.
- Thandar, A. & Arumugam, P. 2011. A new family within the holothuroid order Dactylochirotida with description of a new species from South Africa and comments on the dendrochirotid genus

Neoamphicyclus Hickman, 1962 and the molpadid genus *Cherbonniera* Sibuet, 1974 (Echinodermata:Holothuroidea). Zootaxa 2971:40-48.

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- Thandar, A.S. 2012. *Trachythyone flaccida*, a new sea cucumber from southern Angola (Echinodermata:Holothuroidea:Dendrochirotida:Cucumariidae) with key to the genus. Zootaxa 3693:395-400.
- Martinez, M.I., Thandar, A.S. & Penchaszadeh. P.E. 2013. A new species of *Havelockia* Pearson, 1903 from the Argentine (Holothuroidea:Dendrochirotida:Sclerodactylidae. Zootaxa 3609:583-588.
- Thandar, A. & Arumugam, P. 2014. Designation of type genus for the holothuroid family Cucumellidae (Echinodermata:Holothuroidea:Dendrochirotida) with re-examination of the holotype of *Cucumella decaryi* Cherbonnier. Zootaxa.

12 Published Abstracts

- Thandar, A.S. 1988. Distribution of southern African echinoderms in relation to general biogeographic regions and to local faunistic provinces. Pp. 815. In: ECHINODERM BIOLOGY. PROCEEDINGS OF THE SIXTH INTERNATIONAL ECHINODERM CONFERENCE, VICTORIA, 23-28 AUGUST 1987. (Burke, R.D., Mladenov, P.V., Lambert, P. & Parsely R.L. eds.). Balkema Press, Rotterdam. 818 pps.
- Thandar, A.S. 1991a. Some peculiar morphological features of *Neothyonidium arthroprocessum*, a new phylloporid holothurian from South Africa. Pp. 328. In: BIOLOGY OF ECHINODERMATA. PROCEEDINGS OF THE SEVENTH INTERNATIONAL ECHINODERM CONFERENCE, ATAMI, 9-14 SEPTEMBER 1990. (Yanagisawa, T., Yasumasu, I., Oguro, C., Suzuki, N., & Motokawa, T., eds.). Balkema Press, Rotterdam. 559 pps.
- Thandar, A.S. 1991b. Geographic and bathymetric distribution of southern African deep sea holothuroids. Pp 177. In: BIOLOGY OF ECHINODERMATA. PROCEEDINGS OF THE SEVENTH INTERNATIONAL ECHINODERM CONFERENCE, ATAMI, 9-14 SEPTEMBER 1990. (Yanagisawa, T., Yasumasu, I., Oguro, C., Suzuki, N., & Motokawa, T., eds.). Balkema Press, Rotterdam. 559 pps.
- Thandar, A.S. 1994. Character divergence and cladistic relationships of the southern African genera and subgenera of the family Holothuriidae. P. 559. In: ECHINODERMS THROUGH TIME. PROCEEDINGS OF THE EIGHTH INTERNATIONAL ECHINODERM CONFERENCE, DIJON, FRANCE, 6-10 September 1993 (David, B., Guille, A., Féral, JP., Roux, M., eds.). Balkema Press, Rotterdam. 559 pps.
- Thandar, A.S. 1998. A new dendrochirote holothuroid from deep waters of the west coast of South Africa. Pp. 526. In ECHINODERMS: SAN FRANCISCO. PROCEEDINGS OF THE NINTH INTERNATIONAL ECHINODERM CONFERENCE, SAN FRANCISCO, CALIFORNIA, USA, 5-9 AUGUST 1996. (Mooi, R., & Telford, M., eds.). Balkema Press, Rotterdam. 923 pps.
- Thandar, A.S. 1998. Composition, distribution and probable origin of the Southern African holothuroid echinoderms. Pp. 527. In ECHINODERMS: SAN FRANCISCO. PROCEEDINGS OF THE NINTH INTERNATIONAL ECHINODERM CONFERENCE, SAN FRANCISCO, CALIFORNIA, USA, 5-9 AUGUST 1996. (Mooi, R., & Telford, M., eds.). Balkema Press, Rotterdam. 923 pps.
- Thandar, A.S. & Rajpal, V. 1998. Some thoughts about the “supergenous” *Thyone* Jaeger (Echinodermata: Holothuroidea). Proc. 5th European Conference on Echinoderms, Milan, September 1998, p. 415.

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- Natasen Moodley, M., Thandar, A.S. & Gregory, M.A. 2001. The potential role of the holothurian, *Pseudocnella sykion* as a bioindicator of specific heavy metals, based on energy dispersive x-ray analysis (EDX). ECHINODERMS 2000: PROCEEDINGS OF THE 10TH INTERNATIONAL ECHINODERM CONFERENCE, DUNEDIN, NEW ZEALAND, 31 JANUARY - 4 FEBRUARY 2000. (Barker, M., ed.). Balkema Press, Rotterdam. 600 pps.
- Samyn, Y., Tallon, I., & Thandar, A.S. 2004. Zoogeography of the shallow-water holothuroids of the western Indian Ocean. p. 605. . In: ECHINODERMS PROCEEDINGS OF THE 11TH INTERNATIONAL ECHINODERM CONFERENCE, MUENCHEN, GERMANY, 6-10 OCTOBER 2003. (Heinzeller, T., & Nebelsick, JH., eds.). Taylor & Francis, London. 633pp.
- Thandar, A.S. 2008. Status of our knowledge of the South African holothuroid fauna. In: ECHINODERMS: PROCEEDINGS OF THE 12TH INTERNATIONAL ECHINODERM CONFERENCE, DAMARISCOTA, MAINES, U.S.A. OCTOBER 2006. (Heinzeller, T., & Nebelsick, JH., eds.). Taylor & Francis, London.
- Thandar, A.S. 2012. Biodiversity and biogeography of the southern African holothuroid echinoderms. In: ECHINODERMS: PROCEEDINGS OF THE 14TH INTERNATIONAL ECHINODERM CONFERENCE, BRUSSELS, BELGIUM, AUGUST 2012

Alexander M. KERR

Curriculum Vitæ

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Education

1997 Master of Philosophy in Biology, Yale University
1994 Master of Science in Biology, Marine Laboratory, University of Guam
2000 Ph.D. in Ecology & Evolutionary Biology, Yale University.

Principal appointments

2009-present: Associate Professor of Marine Biology, University of Guam
2009-2011: Special Graduate Faculty, Department of Integrative Biology, University of Guelph,
Canada
2008-present: Adjunct Senior Research Fellow, Australian Research Council Centre of Excellence
for Coral Reef Studies, James Cook University, Australia
2007-present: Adjunct Research Associate, Florida Museum of Natural History, University of
Florida
2005-2008: Assistant Professor of Marine Biology, University of Guam

Invited lectures:

-American Museum of Natural History, Brown University, Harvard University, James Cook
University (Australia), Korea Ocean Research & Development Institute, Smithsonian Institution,
University of California at Santa Barbara, University of Florida, University of Guam, University of
Hawaii at Manoa, University of Perpignan (France), University of the Philippines.

Reviewer for:

African Zoology, Banwa Natural Science, BMC Evolutionary Biology, Bulletin of Marine Science,
Cahiers de Biologie Marine, Canadian Journal of Zoology, Conservation Biology, Coral Reefs,
Ecological Engineering, Fisheries Science, Functional Ecology, Global Change Biology, International
Journal of Remote Sensing, Journal of Arachnology, Journal of Morphology, Journal of the Marine
Biological Association U.K., Marine and Freshwater Research, Marine Biology, Malaysian Nature
Journal, Marine Ecology Progress Series, Molecular Ecology, Micronesica, Nature,
Palaeontologische Zeitschrift, Palaeontology, Proceedings of the Biological Society of Washington,
Proceedings of the National
Academy of Sciences U.S.A., Proceedings of the Royal Society B Biological Sciences, Proceedings of
the [Seventh, Tenth, Eleventh and Twelfth] International Coral Reef Symposium, Proceedings of

the Thirteenth International Echinoderm Conference, Public Library of Science One, South Africa National Research Foundation, Systematic Biology, Systematics and Biodiversity, Thailand Natural History Museum Journal, U.S. National Science Foundation, Zoological Journal of the Linnean Society and Zootaxa.

Consulting:

Commonwealth of the Northern Mariana Islands, Federated States of Micronesia (Kosrae, Pohnpei and Yap States), Geological Survey of Japan, Guana Island Wildlife Sanctuary (British Virgin Islands), International Union for the Conservation of Nature, National Wildlife Federation, Republic of Belau, Republic of Kiribati, Republic of Nauru, South Pacific Commission (New Caledonia), Territory of Guam, United States Navy, World Wildlife Fund.

50 publications in international reviews

***Systema Aspidochirotidae**

Research Interests

An organism's potential to adapt to a novel environment depends in part upon its history of evolving features requisite in previous environs. Replicate radiations of organisms into a given ecosystem, say - coral reefs, permit one to test such questions as: How has the history of organisms prior to their expansion in the tropics constrained or facilitated their diversification onto reefs? How has the evolution of ecological innovation influenced the tropics as a source or sink for global diversity? We address these questions using comparative phylogenetic methods. Using supertree techniques, we have recently produced the most comprehensive phylogeny of scleractinian corals and the first class-level phylogeny of Holothuroidea, the sea cucumbers, from nucleotide sequences, morphological characters and fossil first occurrences. Using these estimates and comparative methods, we are testing hypotheses with a previously unavailable statistical power about how invertebrates have diversified into and out of a derived environment, scleractinian coral reefs.

A more recent applied project has been to test the effectiveness of intact coastal ecosystems in ameliorating damage from tsunamis.

Selected Publications

- Kim, S. W., A. M. Kerr and G. Paulay. 2013. Color, confusion and crossing: Resolution of species problems in *Bohadschia* (Echinodermata: Holothuroidea). *Zoological Journal of the Linnean Society* 168: 81-97.
- Taylor, B. M., J. L. McIlwain and A. M. Kerr. 2012. Marine reserves and reproductive biomass: A case study of a heavily targeted reef fish. *Public Library of Science One* 7: e39599.
- Kerr, A. M., A. H. Baird and T. P. Hughes. 2011. Correlated evolution of sex and reproductive mode in corals (Anthozoa: Scleractinia). *Proceedings of the Royal Society B Biological Sciences* 278: 75-81.
- Feagin, R. A., N. Mukherjee, K. Shanker, A. H. Baird, J. Cinner, A. M. Kerr, N. Koedam, A. Sridhar, R. Arthur, L. P. Jayatissa, D. Lo Seen, M. Menon, S. Rodriguez, M. Shamsuddoha and F. Dahdouh-Guebas. 2010. Shelter from the storm? Use and misuse of coastal vegetation bioshields for managing natural disasters. *Conservation Letters* 3: 1-11.

- Raymundo, L. J., A. R. Halford, A. P. Maypa and A. M. Kerr. 2009. Functionally diverse reef-fish communities ameliorate coral disease. *Proceedings of the National Academy of Sciences, U.S.A.* 106: 17067-17070.
- Konow, N., D. R. Bellwood, P. C. Wainright and A. M. Kerr. 2008. Novel jaw joints promote trophic diversity in coral reef fishes. *Biological Journal of the Linnean Society* 93: 545-555.
- Kerr, A. M. and A. H. Baird. 2007. Natural barriers to natural disasters. *BioScience* 57: 102-103.
- Kerr, A. M. 2005. Molecular and morphological supertree of stony corals (Anthozoa: Scleractinia) using matrix representation parsimony. *Biological Reviews* 80: 543-558.
- Kerr, A.M., D. Janies, R. M. Clouse, Y. Samyn, J. Kuszak and J. Kim. 2005. Molecular phylogeny of coral-reef sea cucumbers (Holothuroidea: Aspidochirotida) based on 16S mt rDNA sequence. *Marine Biotechnology* 7: 53-60.
- Connell, J. H., T. P. Hughes, C. C. Wallace, J. E. Tanner, K. E. Harms and A. M. Kerr. 2004. A 35-year study of competition, species composition and diversity of corals. *Ecological Monographs* 74: 179-210.

28 Refereed articles

37 Reports

Book chapters:

- Kerr, A. M. In the press. Holothuroidea. Page numbers unassigned in K. de Queiroz, P. D. Cantino and J. A. Gauthier (eds.), *Phylonyms: A Companion to the PhyloCode*. Berkeley: University of California Press.
- Kerr, A. M. 2003. Holothuroidea (Sea Cucumbers). Pages 417-431 in D. Thoney (ed.), *Grzimek's Animal Life Encyclopedia. Second Edition. Volume I. Lower Metazoans and Lesser Deuterostomes*. New York: Gale Group Publishers.
- Theses Kerr, A. M. 2000. *Evolution and Systematics of Holothuroidea (Echinodermata)*. Ph.D. Thesis, Department of Ecology and Evolutionary Biology, Yale University. Adviser: Junhyong Kim.
- Kerr, A. M. 1994. *Effects of Disturbance to Holothuroid (Echinodermata) Community Structure*. M.Sc. Thesis, The Marine Laboratory, University of Guam. Adviser: Charles Birkeland.

Languages: English (mother tongue), Chamorro (spoken in Mariana Islands, Micronesia; conversant), French (reading), Spanish (reading).

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AMAL MAURADY

Curriculum Vitæ

Contact:

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Department of life Science
Researcher at the Laboratory ERBGB
Faculty of Sciences and Techniques of Tangier FSTT, Tangier, Morocco.
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ACADEMIC FORMATION

2000. Ph. D of Biochemistry, University of Montreal, Montreal, Canada

1993. Master of Crystallography and NMR of Biological macromolecule, University Joseph Fourier Grenoble, France

SCIENTIFIC AND ADMINISTRATIVE RESPONSIBILITIES

Professor of Biochemistry,
Department of life science, Faculty of Sciences and Techniques of Tangier FSTT, Morocco.
Researcher
Laboratory ERBGB, Faculty of Sciences and Techniques of Tangier FSTT, Morocco.

RESEARCH ACTIVITIES

Actual Projects at the Laboratory ERBGB, Department of life science, Faculty of Sciences and Techniques of Tangier FSTT, Morocco:

- Kinetics and structural studies of Polyphenol oxidase from Moroccan agricultural products
- Data base of signalling pathway proteins
- Biosensors

Previous Projects

2000-2001 Kinetics and Structural studies of vasoconstrictor and neuropeptides (Postdoctoral position),
Laboratory of pharmacology, « Institut National de Recherche en Santé » INRS, Canada

1994 -2000 Study of the enzymatic mechanism of recombinant rabbit muscle aldolase: kinetic and structural study of these mutants, Structural Biology Laboratory, Biochemistry department, University of Montreal, Canada

1992-1993 Structural determination of Ornithine Carbamoyl Transferase, Structural Biology Institute IBS, Grenoble, France

TEACHING EXPERIENCE

- Proteomics, Molecular Modeling, Genetics regulatory network, Master of Bioinformatics and artificial intelligence, ENSA of Tangier, Morocco
- Bioinformatics' tools & resources, Master Specialized of Chemical Safeties, Biological and Radiation, Faculty of Science of Tetouan, Morocco
- Structural Bioinformatics, Master of Biotechnology, FSTT, Tangier, Morocco
- Enzymology, Metabolism, Cellular Biology, Bachelors in Biology, FSTT, Tangier, Morocco

ORGANIZATION OF WORKSHOPS AND LECTURER COURSES

Chair of Bioinformatics workshop

- EMBO Lecturer course, Bioinformatics for microbial genomics and metagenomics, 19th – 24th, November 2012, Rabat, Morocco
- EMBO Lecturer course, Bioinformatics training workshop, 13th - 24th June, 2011, Tangier, Morocco
- IBSS'2011, 4th – 9th April 2011, Tangier, Morocco
- Bioinformatics' Workshop BW'2009, April 2th, 2009, Fez, Morocco
- International Bio-informatics Software School IBSS'2008, November 3th – 8th, 2008, Tangier, Morocco
- Biostatistics Workshop, December 3th – 8th, 2007, Tangier, Morocco
- Bioinformatics' workshop JSB 2007, November 28th – 30th, 2007, EMI, Rabat, Morocco.
- International Bioinformatics Software School IBSS'2006, November 20th -24th, 2006, Tangier, Morocco

Member of organizing committee:

NCBI Molecular Biology tools and resources, December, 14th -18th 2009, Rabat, Morocco
Moroccan Environmental Sustainability initiative, May 31 to June 1, 2, 2010, Tangier, Morocco.

ASSOCIATIVE CONTRIBUTION

- President founder of Moroccan Society of Bioinformatics (SMBI)
- Faculty Advisor, Student group RSG North Africa (ISCB)
- Faculty Advisor, Student group RSG Morocco (ISCB)
- Member of SMBBM

AWARD DISTINCTION:

2011 Fullbright awards, Public Health Research Center, University of South Carolina, Columbia, USA

Languages: French, English, Arabic

Françoise Denis

Curriculum Vitæ

Contact : Université du Maine - Faculté des Sciences et techniques
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Function: Associated Professor (University of Maine)

Academic qualifications

PhD: University of Bretagne Occidentale Option biological oceanography on the theme "biochemical genetics and molecular of the japonicas clam *Ruditapes philippinarum*."

M. Sc. in biological oceanography, University de Bretagne Occidentale: on the theme "micro-distribution and biogeography of hydrothermal stands in the rear arc basins of the south-western Pacific arc" in ecosystems Studies Department of IFREMER.

✚ Teaching

As a university lecturer, mainly in zoology of the 'non vertebrates' and molecular genetics at the Licence and Master levels:

- *Lessons from biology and diversity of animal organisms: anatomical features of the main phyla.
 - Biology of organisms "non vertebrates" comparative study of the principal organs of phyletic groups - related morphology function analysis.
 - Ecology of marine ecosystems: quantitative study of the distribution of fauna on a trophic competition of the foreshore area.
 - Genetic molecular: study of the Organization and the structure of the eukaryotic genomes.
 - Genetic traceability of marine marketable species.
- * Manager of work practices in Master I "Environmental Toxicology": biotechnological analysis - Identification of fragments of DNA by Southern and hybridization.

Supervision of submissions, thesis, Training courses for

- BTS: Biochemistry (University of Maine); Subject: Study of polymorphism genetic in bivalves and crustaceans
- DUT environmental engineering (University of Bretagne Sud); Subject: Approach to molecular genetic variability in the littoral annelid worm *Nereis diversicolor*.
- Diploma of scientific research (University of Maine), subject: "analysis of the genetics of populations by molecular tools in the Veneridae";
- Master of biology option environment (University of La Rochelle), subject: genetic response of white shrimp *Palaemonetes varians* to the Noramium DA 50;
- Master of cell biology and Physiology (University of Maine), subject: expression and regulation of genes of metallothioneins in *Bathymodiolus azoricus* (Bivalvia, Mytilidae);

-Master of population biology and ecosystems (University of science and technology of Lille), topic: Tolerance to salinity of two species of clams *Ruditapes decussatus* and *Ruditapes philippinarum*.

-MASTER I (University of Mans), topic: study of the molecular genetic variability of the estuarine bivalve *Scrobicularia plana*.

- MASTER I (University of Mans), topic: genetic markers for molecular identification at the species level in annelids.

- MASTER I (University of Mans), topic: Study of the genetic variability intra-family annelids Antarctic Ocean

-MASTER II (University of Mans), topic: Influence of intrinsic and environmental factors on population-segregation coastal benthic Protostomia.

Supervision of PhD students:

-co-direction of PhD student Yann Hardiviller from the University of Maine, with Prof. M. Laulier, subject: "characterization and expression of the genes of metallothioneins in two hydrothermal horses: *Bathymodiolus thermophilus* and *Bathymodiolus azoricus*», Ph.d. supported on 09/09/2005;

-co-direction of PhD from the University of Maine and the University of Sfax (Tunisia) of Rim Ladaar-Chaabouni student with Prof. B. Chenais, subject: "Use of metallothioneins as biomarkers of gene transcription in the presence of pollutants from metal type", Ph.d. supported on 10/11/2009;

-co-direction of PhD student Chiraz Ladhar from the University of Sfax, with Prof. H Ayadi, subject: " dynamics of the genetic variability and the biochemical composition of copepods and Artemia an extreme ecosystem saline of Sfax (Tunisia)", Phd. planed in November 2014;

-co-direction of PhD student Sahar Karray from the University of Sfax, with Prof. A. Chaffai, subject: " Analysis of gene components involved in the adaptability of natural populations of potentially marketable bivalve (*Cerastoderma glaucum*)", Phd. planed in December 2014.

Scientific and administrative responsibilities

In charge of teaching 5th semester Biology-Biochemistry-Geology license since 2005. In charge of international relations in the co-graduation in Biology with the University of Sfax (L3, Master, Doctorate). Implementation of recognition OMJ (Master and PhD)

Research activities

All on the study of genetic diversity for analyze the variability of interpopulation at the intraspecific level in relation to the environmental physical-chemical characteristics.

Experiences anterior to my function of Lecturer (1991-1996).

Under my DEA, I have addressed the issues of deep oceanic hydrothermal organism's genetic variability. This first research work has allowed me to familiarize myself with the techniques of biochemical genetics to estimate the variability genetic interpopulation between hydrothermal areas for two species of gastropods characteristic stands in the Western Pacific.

As part of my PhD, I first realized a population genetics approach. It has led to define genetic variability in natural populations of molluscs bivalve recently implanted in the Atlantic littoral environment, *R. philippinarum*. The results showed genetic variation between populations of

clams subjected to various abiotic conditions. These works have pointed out that the specific loci (here, the Aminopeptidase-I Cytosolique) may be specifically subject to selective process capable of altering the genetic structure of populations.

As part of post-doctoral training courses, carried out in the laboratory of molecular genetics of yeasts of the Institute Pasteur in Paris headed by Pr. B. Dujon, I acquired training and experience on the techniques of molecular biology: construction of vectors, systematic analyses of functions associated with genes

Experiences as Associate Professor at the University of Maine (1996-2002)

My work in the laboratory of biology and evolutionary genetics at the University of Maine have been integrated into the framework of doctorates and focused on the studies of molecular genetics of hydrothermal molluscs.

Current research activities at the Station of marine biology of Concarneau (Museum National d’Histoire Naturelle)

The main axis of this work fits in the search for the genetic variability of invertebrate marine or estuarine, variability that can be influenced by natural environmental factors or anthropogenic origins. These ecogenetic works are undertaken at the level of the biochemical and molecular genetics. The interest of this dual approach lies mainly in the fact to compare the impact of the environment on selective markers and neutral markers. Biochemical Genetics is particularly interested in the functional elements of the genome encoding enzyme proteins involved in basal metabolism. These elements are likely to be subject to selective phenomena under pressure from environmental factors, this selection which may involve changes in allele frequencies. Molecular Genetics is designed to identify non-functional elements of the genome that is not subject to selection pressure. These sequences are likely to be genetic markers of population identification and serve as tools for follow-up to gene flow. The models currently being studied belong to the groups of bivalves such as the Mediterranean cockle *Cerastoderma glaucum*, crustaceans such as copepods from saltern environment and the decapods *Carcinus moenas* and annelids (*Nereis diversicolor*). In order to complete my genetic interest, I focus my work on the genetic limits of species and of populations, especially potentially marketable species

International collaboration

Co-supervision of a Phd student from the University of Maine and the University of Sfax on the theme "genetic identification and intraspecific diversity of the zooplankton community in the saltern of Sfax". The objective is to understand the organisation of the genetic variability along a salinity gradient

Another co-supervision of a Phd student from the University of Maine and the University of Sfax focus on the analysis of gene components involved in the adaptability of natural populations of the Mediterranean cockle (*Cerastoderma glaucum*). In a first part, we focus on the phylogeography of *C. glaucum* in western basin. In a second part, we develop the molecular aspect in order to implement the tools for monitor the quality of the natural environment in estimating the level of transcription of target genes.

Publications

- Denis F., Jollivet D., Moraga D., 1993 - Genetic separation of two allopatric populations of Hydrothermal snails *Alviniconcha spp.* (Gastropoda) from two south western pacific back-arc basins. *Biochemical Systematics and ecology*, 21: 431-440.

- Moraga D., Jollivet D., Denis F., 1993 - Genetic differentiation across the western pacific populations of the hydrothermal vent bivalve *Bathymodiolus spp.* and the eastern pacific (13°N) population of *Bathymodiolus thermophilus*. *Deep Sea Research*, 41 (10): 1551-1567.
- Fairhead C., Llorente L., Denis F., Soler M., Dujon B., 1996 – New vectors for combinatorial deletions in yeast Chromosomes and for gap-repair cloning using “split-marker” recombination. *Yeast*, 12: 1439-1457.
- Fairhead C., Thierry A., Denis F., Eck M., Dujon B., 1998 – Mass-murder of ORFs from three regions of chromosome XI from *Saccharomyces cerevisiae*. *Gene*, 223: 33-46.
- Denis F., Vachoux C., Gauvry L., Salin C., Leignel V., Hardivillier Y., Cosson R., Laulier M., 2002 – Characterisation and expression of a *Bathymodiolus sp.* metallothionein gene. *Cahiers de Biologie Marine*, 43 (3-4): 329-332.
- Hardivillier Y., Leignel V., Denis F., Uguen G., Cosson R., and Laulier M., 2004 - Do organisms living around hydrothermal vent sites contain specific metallothioneins? The case of the genus *Bathymodiolus* (Bivalvia, Mytilidae). *Comparative Biochemistry and Physiology Part C: Toxicology & Pharmacology*, 139, (1-3) : 111-118
- Hardivillier Y., Denis F., Demattei M.V., Bustamante P., Laulier M., Cosson R., 2006 Metal influence on metallothionein synthesis in the hydrothermal vent mussel *Bathymodiolus thermophilus*. *Comparative Biochemistry and Physiology Part C: Toxicology & Pharmacology*, Volume 143: 321-332.
- Denis F., Ravallec R., Pavillon, J.-P., Van Wormhoudt A. (2009). Genetic differentiation of atlantic populations of the intertidal copepod *Tigriopus brevicornis*. *Scientia Marina*, 73 (3): 579-587.
- Marchand, J., Denis F., Laroche J. (2009) – Modification de la variabilité génétique et de l’expression de gènes. Dans « Evaluation du risque écologique à l’aide de biomarqueurs » Amiard-Triquet C. et Amiard J.C. Lavoisier Edition.
- Ladhar-Chaabouni R., Mokdad-Gargouri R., Denis F., Hamza-Chaffai A. (2009). Cloning and characterization of cDNA probes for the analysis of metallothionein gene expression in the Mediterranean bivalves: *Ruditapes decussates* et *Cerastoderma glaucum*. *Molecular Biology Reports*, 36 (5): 1007-1014.
- Amiard-Triquet C, Berthe T, Créach A, Denis F, Dourou C, Gévaert F, Mouneyrac C, Ramond J-B Petit F. (2009). Tolerance in organisms chronically exposed to estuarine pollution. In : Claude Amiard-Triquet, Philip S. Rainbow. Environmental assessment of estuarine ecosystems, a case study. Eds : CRC Press / Taylor Francis Group. Chapitre 7, p. 135-157
- Ladhar-Chaabouni R, Hamza-Chaffai A, Hardivillier Y, Chenais B., Denis F. (2010). A pilot study of genetic differentiation between two phenotypes of a Mediterranean population of the bivalve *Cerastoderma glaucum* and genetic discrimination with other *Cerastoderma glaucum* and *Cerastoderma edule* populations outside the Mediterranean. *Marine Ecology an evolutionary perspective*, (2) : 355-363.
- Dettai A. *et al.* (2011). DNA barcoding and molecular systematics of the benthic and demersal organisms of the CEAMARC survey. *Polar Science* 5: 298-312.
- Gharbi A, Chatt N., Van Wormhoudt A, Draeif N, Denis F, Said K. (2011). Allozymes differentiation between populations of the carpet shell clam *Ruditapes decussatus* (Linnaeus 1758) along the Tunisian coast *Biochem. genetics* (first on line DOI 10.1007/s 10528-011-9450-8).

- Tankoua OF, Amiard-Triquet C, Denis F, Minier C, Mouneyrac C, Berthet B (2012) Physiological status and intersex in the endobenthic bivalve *Scrobicularia plana* from thirteen estuaries in northwest France. *Environ Pollut* 167:70-7. doi: 10.1016/j.envpol.2012.03.031. Epub 2012 Apr 25.
- O'Neill M, Gaume B, Denis F, Auzoux-Bordenave S. (2013) Expression of biomineralisation genes in tissues and cultured cells of the abalone *Haliotis tuberculata*. *Cytotechnology* 65(5):737-47
- Gaume B, Denis F, Van Wormhoudt A, Huchette S, Jackson DJ, Avignon S, Auzoux-Bordenave S. (2014) Characterisation and expression of the biomineralising gene *Lustrin A* during shell formation of the European abalone *Haliotis tuberculata*. *Comp. Biochem. Physio. B* 169:1-8.

Igor ECKHAUT

Curriculum Vitæ

Contact: Institute of Biology – University of Mons
Mons- Belgium
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Education

University studies: University of Mons-Hainaut- Belgium

- 1st Bachelor of Sci. Zoological in 1988
- 2nd Bachelor of Sci. Zoological (LPGD) in 1989
- PhD in zoological Sciences (LPGD + F) in 1995

Posts occupied

- Assistant **Professor** (marine biological laboratory; University of Mons-Hainaut) in 1997.
- **Associate Professor** (marine biological laboratory; University of Mons-Hainaut) in 1999
- Head of Department (laboratory biology of marine organisms and Biomimetism; University of Mons-Hainaut) in 2011.

Areas of expertise

Animal biology, marine biology

Specific: Biology of marine invertebrates, biology of coral reef ecosystems, Biology of symbiosis, Holothuriculture and other aquaculture related socio-ecological (coralliculture, algaculture).

Teaching

- Biology of marine invertebrates and vertebrates, biodiversity of benthic animals, biodiversity and ecology of coral reefs
- Comparative anatomy of vertebrates
- Introduction to molecular phylogeny
 - Supervision of 11 doctoral thesis
 - Supervision of 23 submissions
 - Rapporteur of 28 thesis (bachelor, master) and 06 thesis (D.E.A.)
 - 12 times member of jury for PhD in zoological Sciences

Scientific Activities

Research projects: 9 projects FRFC, 1 project CEE, 3 project CUD t

Publications

- Doctoral thesis

I. EECKHAUT, Life Cycle and biology of *Myzostoma cirriferum* (Myzostomida), obligatory symbiont of the feather *Antedon bifida* (Echinodermata). Doctoral thesis, University of Mons-Hainaut, 1995, 106 pages

➤ 80 articles published in international journals, proceedings, extension publications

➤ Chapter books:

- EECKHAUT, D. LANTERBECQ. 2005. Myzostomida: a review of the ultrastructure and phylogeny. In: Morphology, Molecules, Evolution and Phylogeny in Polychaeta and Related Taxa. T. Bartholomaeus and G. Purschke (eds). 253-275 pp. Springer: The Netherlands.
- EECKHAUT, E. PARMENTIER, P. BECKER, S. GOMEZ DA SILVA, M. JANGOUX 2004. Parasites and biotic disease in field and cultivated sea cucumbers. In: Advances in Sea Cucumber Aquaculture and Management. A. Lovatelli (ed.). 311-326pp. FAO Technical Paper: Roma
- EECKHAUT, D. LANTERBECQ. In press. Myzostomida. In Handbuch der Zoologie (W. Kukenthal). De Gruyter, Berlin

➤ Scientific editor - for the magazine "Bêche-de-Mer Information Bulletin".

➤ Member of refereed journals and following reviews and books:

- Chapitre "Myzostomida. Vol 4. Annelida to Tunicata. Fauna of Australia. Wells A. (ed.), Canberra Office, Canberra" written by Dr. M.J. Grygier.
- "Species Diversity". Editor in Chief: Shunsuke F. Matawari (Hokkaido University, Sapporo 060, Japan).
- «Cahiers de Biologie Marine». Editor in Chief: Claude Jouin-Toulmond (Station Biologique de Roscoff, Roscoff, France). Member of Editorial Board
- « American Zoologist ». Assistant Editor: Ruth Nordlander (University of Washington, Seattle, USA).
- « Aquaculture »
- « Ophelia ». Editor: Kristen Muus (Ophelia Publication, Helsingor, Denmark)
- « Marine Drugs ». Assistant Editor : Alicia Li
- « Symbiosis
- « JMBA »

Karim MEZALI

CURRICULUM VITAE

Contact:

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Aquaculture, Faculty of Natural Science and
Life,
University Abdelhamid Ibn Badis, of
Mostaganem, 27000, PO Box 300, Algeria.
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Research interests

Marine Biology & Ecology, Fisheries sciences, Invasive species, Aquaculture, Invertebrates taxonomy, Molecular systematics, Phylogenetics & phylogeography of marine organisms, Genomic, Bioinformatics.

Qualifications

- Diploma of higher Education (Graduate - D.E.S), Biological oceanography: Marine Biogeochemistry - Marine Pollution, (University of Sciences & technology Houari Boumediene - U.S.T.H.B. - Bab Ezzouar - Algeria) 1989;
- Magister Degree, Marine Ecology (*National High school of Marine Sciences & Coastal Management* - Dely - Ibrahim – Algeria) 1998;
- PhD, Marine Ecology (U.S.T.H.B. - Bab Ezzouar - Algeria) 2008.

Topic:

«Phylogeny, Systematic, population dynamics and nutrition of some aspidochirotid "sea cucumbers" species (Holothuroidea: Echinodermata) endemic to the *Posidonia oceanica* seagrass of Algiers coastal area»,

Under the supervision of Prof. Valerio ZUPO (Stazione Zoologica "Anton Dohrn", Laboratory of Functional & Evolutionary Ecology, Benthic Ecology group, Ischia, Naples, Italy) and Prof. Gustav Paulay [Florida Museum of Natural History, Invertebrate Zoology (Malacology & Marine Invertebrates laboratory)].

Teaching

- ✓ Marine Biology & Ecology ; Phylogenetics & Evolution of marine organisms ; Marine Biodiversity ; Fisheries sciences; Dynamics of exploited marine populations; Data processing and modeling ; Bioinformatics ; Scientific English.

Student supervision: 10 Magisters + 3 doctorates

Board member (examiner) of 16 graduate and post graduates dissertation (Doctorate, Magister, engineering degree, license and Master)

Training and international courses

- October 2013: Training course at the laboratory *ECOMERS, University of Nice Sophia Antipolis, Faculty of Sciences, Nice, France* under the supervision of Prof. Patrice Francour, Director of the ECOMERS laboratory: finalization of a publication titled "phylogenetic study and morphological plasticity of some prosobranch gastropods species (limpets) of the Algerian coast.
- April 2013: Participation to the «DNA – Barcoding – DEST – Taxonomy training course», 15 April 2013, organized by the National Museum of Natural History, Paris, France.
- December 2012: Training course at the « Laboratory of Biology of marines Organisms & Biomimetics », University of Mons (Belgium): Isolation and characterization of Saponins (triterpenoid glycosides) from Aspidochirotid holothurians.
- April 2011: Participation to the course « International Bioinformatics Software School IBSS 2011 Third edition » organized by the Moroccan Bioinformatics Society, 04 - 09 April 2011, a Tangier (Morocco).
- April 2010: Training course (Group: Aquatic food web of HMR BOREA-Museum of Natural History, Paris, France): training with statistical software and application to data processing.

Research activities:

- *Organizing Committee*, study and awareness day on "Change in the fauna in the Mediterranean Algerian basin: case of rabbit fish", May 16th 2014, Mostaganem, Algeria.
- Expertise of four research projects (in the pollution of the Algerian coast) submitted to the general direction of research in science and technology (ATRST ex-ANDRU).
- Scientific Committee member of the international Workshop on biodiversity and ecosystems coastlines (BEL03), organized by the "laboratory environmental monitoring network (University of Oran) on 26-27-28 November 2013.
- Responsible of the Post graduation (Magister), option: 'Coastal marine ecosystems and Stress response', Department of biology, Faculty of natural Sciences and life, Abdelhamid Ibn Badis University of Mostaganem.
- Research projects expertise for the national research program "fisheries and aquaculture", National Research Center for the Development of Fisheries and Aquaculture (CNRDPA) - Algeria.
- Consultant for the laboratory of Maritimes studies (Hydra, Algiers). Title of the project expert advice "Analysis of the benthic fauna and flora and the impact of the management of Stidia (Mostaganem) fishing port on the marine environment".
- Reviewers and *board editorial member* for "The International Journal for Marine Sciences & Coastal Research (Marinescor). Scientific journal specializing in the field of the sea sciences, (ENSSMAL, Algiers, Algeria).

Ongoing research project leader (2013-2015)

CNEPRU (F02220120030): Identification, characterization and the state of health of coastal marine ecosystems of the bay of Mostaganem.

Awards

2006: Listed to receive a doctoral scholarship (13 months) at the laboratory of Malacology, Florida Museum of Natural History, University of Florida (Gainesville, USA) sponsored by the Algerian ministry of higher education and scientific research. Experiments in molecular systematics and phylogenetics on marine invertebrates species (sea cucumbers, limpets,...). During my stay, Morphological methods by using light and scanning electron microscopy techniques have been acquired at the Interdisciplinary Center for *Biotechnology Research (ICBR)*, University of Florida (USA) under the supervision of Prof. BYUNG-HO KANG.

2000: Received award to participate to the Advanced International course supported by the pean commission and the COI/ UNESCO: Mediterranean Integrated Coastal Area Management - \M 2000, University of Nice - Sophia Antipolis - France.

37 communications including 26 international publications

- MEZALI K., SOUALILI D. L., NEGHLI L., CONAND C., 2014. Reproductive cycle of the sea cucumber *Holothuria (Platyperona) sanctori* (Holothuroidea: Echinodermata) in the southwestern Mediterranean Sea: Interpopulation variability. *Invertebrate reproduction and development*. Vol. 58(3): 179-189.
- MEZALI K., THANDAR A. S., 2014. First record of *Holothuria (Roweothuria) arguinensis* (Echinodermata: Holothuroidea: Aspidochirotida: Holothuriidae) from the Algerian coastal waters. *Marine Biodiversity Records. Marine Biological Association of the United Kingdom*. doi:10.1017/S1755267214000438; Vol. 7, issue 1, pp. 1-4; e40; 2014
- BELBACHIR N., MEZALI K., SOUALILI D. L., 2014. Selective feeding behaviour in some aspidochirotid holothurians (Echinodermata: Holothuroidea) at Stidia, Mostaganem Province, Algeria. *S.P.C. Bêche-de-mer Information Bulletin*. 34: 34-37.
- BOUZAZA Z. & MEZALI K., 2014. Contribution à l'étude systématique, phylogénétique et phylogéographique de quelques espèces de patelles (Gastropoda: Patellidae) de la frange côtière algérienne. *Actes du 3^{ème} Colloque International sur la Biodiversité et écosystèmes littoraux (BEL 03), Oran - Algérie, 26-27-28 Novembre 2013*. Inter Islamic Sciences & Technology Network on Oceanography (INOC, Izmir, Turkey) & Laboratoire Réseau de Surveillance Environnementale (LRSE, Oran, Algérie). (eds). *Proceedings of BEL 03 –2014*. pp. 602-607.
- BELBACHIR N., MEZALI K. & SOUALILI D. L., 2014. Rôles de l'herbier de Posidonies dans l'alimentation des holothuries aspidochirotes (Echinodermata: Holothuroidea) de la région de Stidia. *Actes du 3^{ème} Colloque International sur la Biodiversité et écosystèmes littoraux (BEL 03), Oran - Algérie, 26-27-28 Novembre 2013*. Inter Islamic Sciences & Technology Network on Oceanography (INOC, Izmir, Turkey) & Laboratoire Réseau de Surveillance Environnementale (LRSE, Oran, Algérie). (eds). *Proceedings of BEL 03 –2014*. pp 81-90.
- OULHIZ A., SOUALILI D. L & MEZALI K., 2014. Contribution à l'évaluation de la biodiversité et de la qualité du milieu des cotes rocheuses de la zone intertidale de la région de Mostaganem. *Actes du 3^{ème} Colloque International sur la Biodiversité et écosystèmes littoraux (BEL 03), Oran - Algérie, 26-27-28 Novembre 2013*. Inter Islamic Sciences & Technology Network on Oceanography (INOC, Izmir, Turkey) & Laboratoire Réseau de Surveillance Environnementale (LRSE, Oran, Algérie). (eds). *Proceedings of BEL 03 –2014*. pp.106-111.

- MEZALI K., CAULIER G., GERBAUX P., DEMEYER M., EECKHAUT I., FLAMMANG P. (2014, in press). On the chemical characterization of the saponins contained in the integument and Cuvierian tubules of the sea cucumber *Holothuria (Platyperona) sanctori* (Delle Chiaje, 1823) from the Mediterranean Sea. *Marine drugs*.
- MEZALI K., SOUALILI D. L., 2013. The ability of holothurians to select sediment particles and organic matter. *SPC Bêche de mer Information Bulletin*. 33: 38-43.
- MEZALI K., 2013. Polymorphism in *Holothuria (Platyperona) Sanctori* from the Algerian coastal area. *Proceedings du 40^{ème} Congrès de la Commission Internationale pour l'Exploration Scientifique de la Mer Méditerranée (40th CIESM Congress Proceedings)*: Marseille, France, Vol. 40, p. 647.
- BELBACHIR N., MEZALI K., 2013. La sélectivité chez *Holothuria poli*. *Proceedings du 40^{ème} Congrès de la Commission Internationale pour l'Exploration Scientifique de la Mer Méditerranée (40th CIESM Congress Proceedings)*: Marseille, France, Vol. 40, p. 641.
- BOUZAZA Z., MEZALI K., 2013. Etude systématique, phylogénétique et phylogéographique de quelques espèces de patelles. *Proceedings du 40^{ème} Congrès de la Commission Internationale pour l'Exploration Scientifique de la Mer Méditerranée (40th CIESM Congress Proceedings)*: Marseille, France, Vol. 40, p. 859.
- MEZALI K., FRANCOUR P., 2012. Les holothuries aspidochirotés de quelques sites des côtes algériennes: révision systématique et relations phylogénétiques. *Bulletin de la Société Zoologique de France*, 137(1-4): 177-192.
- SOUALILI D. L., SEMROUD R., MEZALI K. & GUILLOU M., 2012. Estimation de la qualité des eaux de baignade à travers l'étude de populations de l'oursin *Paracentrotus lividus* (Lmk). *Bulletin de la Société Zoologique de France*, 137(1-4): 215-228.
- KIES F., MEZALI K., SOUALILI D. L., 2012. Modélisation sous R de la pêche et des flux de nutriments: Modélisation sous R de la pêche de Mostaganem et des flux de nutriments (N, P, Si) de l'Oued Chélif (Algérie) (French Edition). *Éditions Universitaires Européennes* (September 29, 2012), 132 p.
- MEZALI K., 2011. Some insights on the phylogeny of Algerian shallow-water sea cucumbers species (Holothuroidea: Aspidochirotida). *SPC Bêche de mer Information Bulletin*. 31: 45-47.
- MEZALI K., 2011. Molecular taxonomy and phylogeny of Algerians shallow-water sea cucumbers (Holothuroidea: Aspidochirotida) based on 16S mitochondrial DNA. *Actes du 2^{ème} Colloque International sur la Biodiversité et écosystèmes littoraux (BEL 02), Oran - Algérie, 28-30 Novembre 2010*. Inter Islamic Sciences & Technology Network on Oceanography (INOC, Izmir, Turkey) & Laboratoire Réseau de Surveillance Environnementale (LRSE, Oran, Algérie). (eds). *Proceedings of BEL 02 – février, 2011*, pp. 69 – 74.
- BACHIR BOUIADJRA B., OULHIZ A., MEZALI K., SOUALILI-MEZALI D. L. & GHOMARI S. M., 2011. Le suivi des opérations de repeuplement par deux Cyprinidés : Carpe argentée (*Hypophthalmichthys molitrix*) et Carpe à grande bouche *Aristichthys nobilis*) au niveau du barrage Gargar. W de Relizane -Algérie. *Actes du 2^{ème} Colloque International sur la Biodiversité et écosystèmes littoraux (BEL 02), Oran - Algérie, 28-30 Novembre 2010*. Revue INOC, Izmir, Turquie, (eds). *Proceedings of BEL 02 – février, 2011*. pp. 189 – 195.
- MEZALI K., ZUPO V., FRANCOUR P. 2006. Population dynamics of *Holothuria (Holothuria) tubulosa* and *Holothuria (Lessonothuria) polii* of an Algerian *Posidonia oceanica* meadow. *Biol. Mar. Medit.* 13 (4): 158 - 161.
- MEZALI K. 2004a. Micro-répartition des holothuries aspidochirotés au sein de l'herbier de *Posidonies* de la presqu'île de Sidi-Fredj (Algérie). *Proceeding du 37^{ème} Congrès de la Commission Internationale pour l'Exploration Scientifique de la Mer Méditerranée (37th CIESM Congress Proceedings)*: Barcelone Vol. 37, p. 534.
- MEZALI K., 2004b. Feeding behaviour of *Holothuria tubulosa* and *Holothuria polii* of Tamentefoust area - Algeria. *Proceedings du 37^{ème} Congrès de la Commission Internationale pour l'Exploration Scientifique de la Mer Méditerranée (37th CIESM Congress Proceedings)*: Barcelone Vol. 37, p. 535.

- MEZALI K., CHEKABA B., ZUPO V., ASSLAH B., 2003. Comportement alimentaire de cinq espèces d'holothuries aspidochirotés (Holothuroidea: Echinodermata) de la presqu'île de Sidi-Fredj (Algérie). *Bulletin de la Société Zoologique de France*, 128 (1): 1-14.
- MEZALI K., 2002. Systematic revision of five aspidochirote holothurians species (Holothuroidea: Echinodermata) inhabiting the *Posidonia oceanica* meadow of the Sidi-Fredj peninsula (Algeria). *SPC Bêche de mer Information Bulletin # 6 – April 2002*, p. 24.
- MEZALI K., 2001. Biométrie des holothuries aspidochirotés (Holothuroidea: Echinodermata) de la presqu'île de Sidi-Fredj (Algérie). *Proceedings du 36^{ème} Congrès de la Commission Internationale d'Exploration Scientifique de la Mer Méditerranée (36th CIESM Congress Proceedings)*: Monaco Vol. 36, p. 403.
- MEZALI K., SEMROUD R., 1997. Analyses modales et essai d'estimation des paramètres de croissance, de l'âge et du mois de recrutement de trois espèces d'holothuries aspidochirotés (Holothuroidea: Echinodermata) de la région de Sidi-Fredj (Algérie). *Proceedings du 36^{ème} Congrès de la Commission Internationale d'Exploration Scientifique de la Mer Méditerranée*: Monaco, 35 (2): 466-467.
- MEZALI K., SEMROUD R., 1995. Relations de biométrie de cinq espèces d'holothuries aspidochirotés (Holothuroidea: Echinodermata) dans la région de Sidi-Fredj (Algérie). *Actes du Premier Congrès Maghrébin des Sciences de la Mer, Hammamet, 20-22 novembre 1995. Bulletin de l'Institut National des Sciences et Technologies de la Mer*, Tunis. pp. 25-29.

23 Communications and national conferences

Languages: Arabic, French and English.

Lamya CHAOUI

CURRICULUM VITAE

Contact:

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Qualifications

- Bachelor, June 1985.
- D.E.S in Animal Biology. Option: zoosystematic. Annaba University, September 1989.
- DEA in Animal Ecology. Option: Animal ecophysiology. Annaba Univ. Annaba, in September 1990.
- Doctoral 3rd cycle in Animal Biology. Option: Animal ecophysiology. Univ. Annaba, July 1993.
- PhD. Annaba University, May 2007.

Post-doctoral training:

Theme: Genetic Polymorphism of sea bream *Sparus aurata* in laguno-marines Mediterranean systems.

Location: University of Montpellier II. Institute of Evolutionary Sciences (ISEM).

Period: September 2009 / August 2010.

Key qualifications: (Relevant to the project): Biodiversity, Ichthyology, Population genetics.

I'm lecturer at the University of Annaba, with 12 years' post-doctoral (3rd cycle) experience in lagoon fish, with particular attention on the diversity and population genetics difference between sea and lagoon. She has extensive research experience as a participant in national and international research projects.

Research projects:

✚ Funding: Programme Agreement Algerian-Tunisian cooperation.

Partners: University of Tunis El Manar.

Title: Freshwater Ichthyodiversity North Africa: endemism and impacts of introductions.

Quality: Project Manager (2012-2016).

✚ Funding: Programme Agreement Algerian-French cooperation, Tassili N ° 26389PM.

Genetics and ecology of gorgonians in Algeria: management of populations and responses to global change.

Partners: University of Annaba - University of the Mediterranean (Aix-Marseille II) - University of Nice Sophia-Antipolis.

Quality: Project Manager (2012-2016).

Publications

- Kara M. H., Bengraine K. A., Derbal F., Chaoui L. & Amarouayache M., 2004. Quality evaluation of a new strain of *Artemia* from Marouane Chott (North-East Algeria). *Aquaculture*, 235: 361-369.
- Chaoui L., Kara M. H., 2004. Nouveau signalement de la sole du Sénégal *Solea senegalensis* dans la lagune du Mellah (Algérie Nord-Est). *Cybium*, 28(3):
- Chaoui L., Derbal F., Kara M. H. & Quignard J. P., 2005. Alimentation et embonpoint de la daurade *Sparus aurata* dans la lagune du Mellah. *Cah. Biol. Mar.*, 46: 221-225.
- Chaoui L., Kara M. H. & Quignard J. P., 2006. Growth and reproduction of gilt-head sea bream *Sparus aurata* (L.) in extensive rearing in Mellah lagoon (North-East Algeria). *Scientia marina*, 70(3) :545-552.
- Chaoui L., Kara M. H., Faure E., Quignard J. P., 2006. L'ichtyofaune de la lagune du Mellah: diversité, production et analyse des captures commerciales. *Cybium*, 30(2): 123-132
- Chaoui L., Kara M. H., Faure E., Quignard J. P., Bonhomme F., 2009. Forte différenciation génétique de la daurade *Sparus aurata* (L., 1758) entre les deux rives de la Méditerranée occidentale. *C. R. Biologies*, 332: 329–335.
- Chaoui L. Kara M. H., 2011. Evaluation et diagnostic par l'approche structurale de la population de daurades *Sparus aurata* (L. 1758) dans la lagune du Mellah. *Rev. Ecol. (Terre et vie)*, 66: 135-144.
- Chaoui L., Gagnaire P. A., Guinand B., Quignard J. P., Tsigenopoulos C., Kara M. H., Bonhomme F., 2012. Microsatellite length variation in candidate genes is associated with habitat type in the gilthead sea bream *Sparus aurata*. *Mol. Ecol.*, 21: 5497-5511.
- Kara M. H., Chaoui L., Derbal F., Zaidi R., de Boisséson C., Baud M., Bigarré L., 2014. Betanodavirus-associated mortalities of adult wild groupers *Epinephelus marginatus* and *Epinephelus costae* in Algeria. *J. Fish Dis.*, sous presse.

Maria Celia (Machel) D. MALAY

Curriculum Vitæ

Contact

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Marine Laboratory
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Positions held

Research Affiliate, University of Guam Marine Laboratory, 2012
Research Associate, Marine Invertebrate Division, Florida Museum of Natural History, 2012

Assistant Professor, Biology Department, De La Salle University – Manila; 2011-2012

National Science Council Postdoctoral Fellow; 2010-2011, Institute of Marine Biology, National Taiwan Ocean University. Supervisor: Dr. Tin-Yam Chan

Education

Ph.D. Zoology; 2010, University of Florida (Advisor: Dr. Gustav Paulay)

M.S. Program in Marine Science; 1998-2002 [ABT], University of the Philippines – Diliman (Advisor: Dr. Marie Antonette Juinio-Meñez)

B.S. Biology; 1998, University of the Philippines–Diliman (Thesis co-advisors: Dr. Wilfredo Barraquio & Dr. Flerida Cariño)

Research Interests

Systematics, biogeography, and ecology of marine invertebrates; tropical marine biology and biodiversity; management of coastal resources and invertebrate fisheries.

My interests lie in figuring out what lives on reefs, and the engines of diversification that drive the evolution of reef-associated organisms. Small Pacific islands and the Coral Triangle biodiversity hotspot are enduring interests of mine – why are they so diverse, where do the biogeographic boundaries lie, what special ecological traits promote rapid speciation, and what new species remain to be discovered? I am also interested in connections between biodiversity, ethnobiology, and resource management and conservation, because biodiversity hotspots also tend to be areas with high cultural diversity and are also the most threatened by human encroachments.

In my research, I link modern molecular genetics tools with classical taxonomy. I'm also a strong believer in spending as much time in the field as one possibly can, as this is the best way to really get to know a group and an ecosystem. Taxonomically speaking, I've a special place in my heart for

crustaceans – I’ve worked extensively on hermit crabs and coral-dwelling barnacles. But I’m interested in the evolution and natural history of any and all tropical marine invertebrates. They are all cool and fascinating to me.

Publications & manuscripts in progress

- Bowen, BW, K Shanker, N Yasuda, MCD Malay, S von der Heyden, G Paulay, LA Rocha, KA Selkoe, PH Barber, ST Williams, HA Lessios, ED Crandall, G Bernardi, CP Meyer, KE Carpenter, RJ Toonen. 2014. Phylogeography Unplugged: Comparative geographic surveys in the genomic era. *Bulletin of Marine Science* 90 (1): 00-000.
- Poupin, J, M Zubia, N Gravier-Bonnet, P Chabanet, and M Malay. 2012. Illustrated checklist of the Decapoda at Europa Island. *Western Indian Ocean Journal of Marine Science* 11: 1-25.
- Malay, MCD, T Komai, and TY Chan. 2012. A new cryptic species in the “*Calcinus anani* Poupin & McLaughlin, 1998” species complex (Decapoda:Anomura: Diogenidae): evidence from coloration and molecular genetics. *Zootaxa* 3367: 165-175.
- Malay, MCD and G Paulay. 2010. Peripatric speciation drives diversification and distributional patterns of reef hermit crabs (Decapoda: Diogenidae: *Calcinus*). *Evolution* 64(3): 634-662.
- Poupin, J and MCD Malay. 2009. Identification of a *Ciliopagurus strigatus* (Herbst, 1804) species-complex, with description of a new *Ciliopagurus* from French Polynesia (Decapoda, Anomura, Diogenidae). *Zoosystema* 31(2): 209-232.
- Sandin, SA, JE Smith, EE DeMartini, EA Dinsdale, SD Donner, AM Friedlander, T Konotchick, M Malay, JE Maragos, D Obura, O Pantos, G Paulay, M Richie, F Rohwer, RE Schroeder, S Walsh, JBC Jackson, N Knowlton, and E Sala. 2008. Baselines and degradation of coral reefs in the northern Line Islands. *PLoS ONE* 3(2): e1548.
- Juinio-Meñez, MA, HGP Bangi, and MCD Malay. 2008. Effect of type of feed, stocking density and grow-out site on gonad yield, growth and survivorship of cultured sea urchin. *Philippine Agricultural Scientist* 91(4): 439-449.
- Juinio-Meñez, MA, HGP Bangi, MCD Malay, and D Pastor. 2008. Enhancing the Recovery of Depleted *Tripneustes gratilla* Stocks Through Grow-out Culture and Restocking. *Reviews in Fisheries Science* 16(1-3): 35-43.
- Juinio-Meñez, MA, MCD Malay, and HGP Bangi. 2001. *Sea Urchin Grow-Out Culture*. Coastal Resources management Tools. Enhancing Community Participation in Fishery Resources Management Project, the Marine Science Institute, University of the Philippines. The Royal Netherlands Embassy and the Department of Agriculture – Bureau of Agricultural Research. 34 pages.
- Malay, MCD, MA Juinio-Meñez, and C Villanoy. 2000. Population genetic structure of the sea urchin *Tripneustes gratilla* from selected sites in western Luzon and eastern Philippines. In: *Proceedings of the 9th International Coral Reef Symposium*, Bali, Indonesia, October 23 – 27, 1:107-111.
- Malay, MCD, HGP Bangi, and MA Juinio-Meñez. 2000. Enhancement effect of sea urchin grow-out cages in Lucero, Bolinao, Pangasinan. *Science Diliman* 12(2): 1-9.

Scientific & Media Coverage

- “Evolution: Splitting on the Edges”, *Science (Editor’s Choice Section)* 327: 1555, 26 March 2010.
- “Gulf of Mexico yields a wealth of undersea animals”, *The Gainesville Sun*, 5 Dec 2006 (<http://www.gainesville.com/apps/pbcs.dll/article?AID=/20061205/LOCAL/612040343/-1/news>).

- Invited Seminars**
- Speciation in the tropical seas: New insights from reef-associated crustaceans. Invited seminar, University of the Philippines – Marine Science Institute; Dec 2010.
 - Speciation in the tropical seas: What reef-associated crustaceans can teach us (or: The Attack of the Crustaceans!!). Exit seminar, Department of Biology, University of Florida; Jul 2010; FL, USA.
 - Diversity and speciation of the coral-dwelling barnacles (Balanomorpha: Pyrgomatidae). Invited talk at *The Crustacean Society Summer Meeting*; Sept 2009; Tokyo, Japan.
 - Phylogenetics, speciation, and biogeography of hermit crabs (*Calcinus*) and coral-dwelling barnacles (Pyrgomatidae). Invited seminar, University of the Philippines – Marine Science Institute; Jun 2008.
 - Systematics, phylogenetics, & biogeography of coral-inhabiting barnacles (Pyrgomatidae). Invited lecture, Soong Research Laboratory, National Sun Yat-Sen University, Kaohsiung, Taiwan; Jun 2007.
- Contributed Presentations**
- Malay, MCD. Speciation in the coral dwelling barnacles (Balanomorpha: Pyrgomatidae): Investigating the roles of geography and host-specificity. Oral presentation at the *11th Phil Association of Marine Science National Symposium*; Oct 2011; Tagaytay, Philippines.
 - Malay, MCD. Between a Rock and a Hard Place: Phylogenetics & speciation of the coral-dwelling barnacles. Oral presentation at the *2nd UF Marine Biology Meeting*; Feb 2010; FL, USA.
 - Malay, MCD and G Paulay. Peripatric speciation drives diversification and distributional patterns of reef hermit crabs” (Decapoda: Diogenidae: *Calcinus*). Poster presented at *The Crustacean Society Summer Meeting*; Sept 2009; Tokyo, Japan.
 - Malay, MCD. Phylogenetics, biogeography, host-specificity, and speciation in the coral-dwelling barnacles. Oral presentation at the *1st UF Marine Biology Meeting*; Jan 2009; FL, USA.
 - Malay, MCD. Phylogenetics & speciation of coral barnacles (Pyrgomatidae), with emphasis on the genus *Trevathana*”. Oral presentation at the *11th International Coral Reef Symposium*; Jul 2008; FL, USA.
 - Malay, MCD, MA Juinio-Meñez, and C Villanoy. Population genetics of the sea urchin *Tripneustes gratilla* from selected sites in western Luzon and eastern Philippines. Oral presentation at the *9th International Coral Reef Symposium*; Oct 2000; Bali, Indonesia.
 - Malay MCD, MA Juinio-Meñez, HGP Bangi, and RMB Hapitan. Effect of seasonality, lunar phase, stocking density, and grow-out site on the gonad yield of the sea urchin *T. gratilla*. Oral presentation at the *5th Phil Assoc of Mar Sci Nat Symp*; Oct 1999; Quezon City, Philippines.
 - Malay MCD, HGP Bangi, and MA Juinio-Meñez. Enhancement effect of sea urchin grow-out cages in Lucero, Bolinao, Pangasinan. Poster presented at the *5th Phil Assoc of Mar Sci Nat Symp*; Oct 1999; Quezon City, Philippines.
- Workshops**
- NESCent Catalysis meeting on the “*Molecular Ecology and Evolution of the Indo-Pacific*”, Durham NC, March 5-8, 2012
 - Innovation Through Institutional Integration (i3) pedagogical workshop “*Expanding the Teaching Toolbox: Introduction to Active and Scientific Teaching Approaches*”,

Gainesville FL, March 26-27, 2010

Honors and Fellowships

- Postdoctoral Fellowship, National Science Council of Taiwan (2011)
- Austin Award for excellence in natural science research, Florida Museum of Natural History (2010)
- Best Poster, The Crustacean Society Summer Meeting in Tokyo (for the poster “Peripatric speciation drives diversification and distributional patterns of reef hermit crabs”; 2009)
- Travel Grants, Dept. of Biology, Office of Research & Graduate Programs, & Graduate Student Council; Univ. of Florida (2009)
- Travel Grant for Symposium Speakers, The Carcinological Society of Japan (2009)
- Best Published Paper in Marine Fisheries, EO Tan Memorial Awards, Republic of the Philippines (for the paper “Enhancing the recovery of depleted *Tripneustes gratilla* stocks through grow-out culture and restocking” by Juinio-Meñez et al.; 2008)
- Kuroshio Visiting Researcher Fellowship, National Sun Yat-Sen University, Taiwan (2007)
- Student Research Fellowship, American Microscopical Society (2007)
- Exchange Student, FACE Program (Ocean Bridges: A Florida-France Training & Research Cooperative in Coral Reef Conservation and Biodiversity) (2006)
- Lerner-Gray Grant for Marine Research, American Museum of Natural History (2004)
- Travel Grant, Department of Zoology, University of Florida (2004)
- Brian Riewald Memorial Fund Research Grant, Department of Zoology, University of Florida (2004)
- Brayfield Scholarship in Invertebrate Paleontology (2003)
- Alumni Fellow, University of Florida (2002 – 2006)
- Best Research Paper (Unpublished Category), 12th Bureau of Agricultural Research National Research Symposium, Oct 2000 (for the paper “Enhancement effect of sea urchin grow-out cages in Lucero, Bolinao, Pangasinan” by Malay et al.)
- Travel Grant, David & Lucile Packard Foundation (2000)

Teaching Experience

- Biology Department, De La Salle University Manila: *Invertebrate Zoology* (LBYBIO2); *Marine Biology* (MARINBI); *Genetics* (LBYBIOE); *New Materials in Biology* (SCIMATB & LBYMATB); 2011-2012
- Department of Zoology, University of Florida: *Invertebrate Zoology* (ZOO2203C), 2005-2010; *Genetics* (PCB3063), 2008; *Evolution* (ZOO7677), 2007; *Integrated Principles of Biology I* (BSC2010), 2004

Research Assistant Experience	<ul style="list-style-type: none">- Research assistant, Division of Invertebrate Zoology (2002-2010)- Project Leader: Dr. Gustav Paulay (Florida Museum of Natural History)- Intensive field collections; processed and photographed invertebrates; collection curation; helped manage the molecular genetics laboratory.- Research assistant, Sea Urchin Project (1999 – 2002)- Project Leader: Dr. Marie Antonette Juinio-Meñez (UP-MSI)- Population genetics; surveyed fisheries stocks; worked in experimental aquaculture and grow-out facilities; co-authored a training manual; assisted in training sessions for resource managers. <p>Editorial assistant, “Philippine Coral Reef Atlas” book project (1998) Supervisor: Dr. Porfirio M. Aliño (UP-MSI)</p>
Field Experience	Independent and group fieldwork in the Philippines (with UP-MSI , DLSU, & the MNHN), Guam & the Northern Marianas (with UF , UoG, & NOAA), the Line Islands (with UCSD-SIO), French Polynesia (with the FACE program, UF, & EPHE), the Cook Islands, Fiji, Taiwan (with NSYSU and NTOU), Oman (with SQU), Florida (with UF), the Iles Eparses (with TAAF and Univ-Réunion), and Réunion (with the Université de La Réunion).
Service	Marine Specialist Collaborator, Micronesia Biosecurity Plan (2013) Guest judge, Mt. Carmel School Science Fair (Guam), 23 April 2013 Reviewer: Journal of Experimental Marine Biology; Invertebrate Systematics Scientific Consultant, Philippine Pavilion, Yeosu World Expo 2012 [winner of 2 gold medals (Theme Development & Creative Display) in the Small Pavilion category]
Professional Memberships	The Crustacean Society; Society for the Study of Evolution; American Microscopical Society; International Society for Reef Studies
SCUBA Certifications	AAUS Scientific Diver; PADI Rescue Diver; TDI Nitrox Certification. Active diver since 1998.
Languages	Fluent in Tagalog (Filipino), English, & French

Marie ABOUD-ABI SAAB

Curriculum Vitæ

Contact:

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EDUCATION

Graduate

- ✚ Master of Natural Sciences, 1973, Lebanese University, Faculty of Sciences.
- ✚ Diplôme d'Etudes Approfondies on Oceanography (DEA), 1976, AIX- MARSELLE II University, France.
- ✚ Doctorate 3rd cycle on Oceanography, 1977, AIX- MARSELLE II University, France.
- ✚ Doctorat d'Etat on Oceanography, 1985, AIX- MARSELLE II University, France.

Post-doctorate: Fulbright scholarship Program, February - August, 1995

PROFESSIONAL EXPERIENCE

Academic and Field work

Research

- ✚ 1974-1975: Research assistant, Biology department, American University of Beirut.
- ✚ 1978-1985: Researcher (Phytoplankton, taxonomy, ecology...), Marine Research Center/ LNCSR. (Primary Production Department)
- ✚ 1985-present: Senior Researcher, National Center for Marine Sciences/ LNCSR.

Teaching and Academic activities

- ✚ 1978-1990: Professor of Oceanography, Lebanese University, Faculty of Sciences (Courses + practical work).
- ✚ 1990- 2001: Professor of Aquaculture Initiation to Oceanography, Saint-Esprit University, Faculty of Agriculture.
- ✚ 2000-2005: Professor of Oceanography Saint-Joseph University, Faculty of Sciences, Beirut (Courses + practical work,).
- ✚ 1996-2013: Professor of Aquaculture and Initiation to Oceanography, Lebanese University, Faculty of Agriculture, Beirut.

- ✚ Advisors of 30 students for Master, 4 for DEA, and 7 for PhD degrees.

Research activities

- National Expert in UNEP for the purposes of article 2 of annex VIII of the Law of the sea Convention, nominated by Lebanese Government for the project concerning: Climate change, Biodiversity.

- Member in the committee of the preparation of national rapport for the estimation of impact of climatic change in the environment and their adaptation.
- Member of ‘the International scientific advisory Committee (International Workshop on “Integrated Coastal Zone Management, Izmir –Turkey, 20-22 October, 2009), INOC.
- Preparation of an " action Plan for the establishment of strategies on the conservation of coastal habitats' in the context of the Action Plan for the conservation of biological diversity in the Mediterranean region (SAP BIO)- Lebanon.
- Principal investigators for 20 National projects and representative of Lebanon in many bilateral and Mediterranean projects.
- Participation in Mediterranean projects: MYTIMED, ACCOBAMS.

Recent activities

- Lebanese coordinator of the European project SESAME “*Southern European Seas: Assessing and Modelling Ecosystem changes*”2006-2010.
- **Partner in Mediterranean project: INCAM** (Improving National Assessment and Monitoring Capacities for Integrated Environment and Coastal Ecosystem Management) (executive partners: CIHEAM, CNRS Libanais, IRD).Ending 2013
- Coordinator of the work package Hydrology and planktonology in the bilateral Lebanese– Italian project CANA "*Establishing monitoring and sustainable development of the Lebanese Sea*". Ongoing project.
- Lebanese coordinator of the ENPI –CBCMED project M3-HABs« *Risk Monitoring, Modelling and Mitigation of Benthic Harmful Algal Blooms along Mediterranean coasts*” 2014-2015.

Membership in:

- International Committee for toxic microalgae.
- International Council for Scientific Exploration in Mediterranean (committee of plankton)
- Lebanese Association for the Advancement of Science.
- Arab association for Oceanography.
- International committee for Bird preservation.
- Cultural Council of Byblos.

List of Scientific publications since 2005:

- Fakhri, M., Romano, J. -C., Abboud-Abi Saab, M. 2005. Impact of natural and artificial chemical inputs on the marine ecosystem of Batroun region (North Lebanon). *Leb. Sci. J.*, 6(1) : 13-27.
- Abboud-Abi Saab, M., Fakhri, M., Kassab, M.T., Mattar N., 2005. Les sels nutritifs et le phytoplancton sur la côte sud du Liban : évaluation d’indices écologiques. *Leb. Sci. J*, 6(2) : 27-43.
- Abboud-Abi Saab & Nader, M., 2005. Establish Conservation Strategies for Lebanese Coastal Habitats, 559-566, In: INOC 2005, Marine & Coastal Protected Areas ed. by Chouikhi, A. & Menioui M., 687pp.
- Khalaf, G. & Abboud- Abi Saab, M. 2005. Surveillance permanente de la diversité biologique marine et côtière du Liban. 594 -598, In: INOC 2005, Marine & Coastal Protected Areas. Ed. by Chouikhi, A. & Menioui M., 687pp

- Abboud-Abi Saab, M., Kassab, M.T., Ammar, I., 2005. Seasonal and spatial variation of hydrology and phytoplankton assemblages in the Lebanese –Syrian coastal waters. The Regional Workshop on Marine Sciences and Natural Resources, Tishreen University, Lattakia, Syria 25-26 May 2005.(Abstract).
- Abboud-Abi Saab, M., Chedid, S., Kassab, M.T. 2006. The effect of environmental factors on the development of potentially harmful microalgae in fishing harbors in the Lebanese waters (Eastern Mediterranean): 15-28. In: A. Chouikhi and HH Kouyoumjian, Protection of Coastal & Marine Environment, Inter-Islamic Science and Technology Network on Oceanography, 274pp.
- Kanaan, H., Biard, J.F., Khalaf, G., Abboud-Abi Saab, M., Mourtada, M., and Abou-Mrad, C. 2006. Oligoelements and lipids in Pterocladia from the Lebanese Coast. *Arab Journal of Pharmaceutical Sciences*, 3(3):31-38.
- Khalaf, G. Nakhlé, K., Abboud-Abi Saab, M., Tronczynski, J. Mouawad, R. et Fakhri, M. 2006. Preliminary results of the oil spill impact on Lebanese coastal waters. *Leb. Sci. J*, 7(2) : 135-153.
- Abboud-Abi Saab, M., Kassab M.-T. & Tarek, E., 2006. Utilisation des populations phytoplanctoniques comme indicateur de l'équilibre du système pélagique dans les zones côtières libanaises. Regional Workshop on « Monitoring of Coastal Zones and Legislation for the Implementation of National Observatory on Environment and development, CNRSL & UNEP-MAP, 24-25 May: 29-30. (Abstract).
- Fakhri, M., Abboud-Abi Saab, M., Romano, J.C. et Tarek, E., 2006. Acquisition des données par mesures en continu : Stratégie complémentaire du programme de surveillance des eaux côtières libanaises. Regional Workshop on « Monitoring of Coastal Zones and Legislation for the Implementation of National Observatory on Environment and development, CNRSL & UNEP-MAP, 24-25 May: 23-24. (Abstract).
- Abboud-Abi Saab, M., J.-C. Romano, M. Fakhri, 2006. Influence des Apports Fluviaux et Industriels sur les Populations Phytoplanctoniques dans la région de Selaata (Mer Levantine). *WATMED 3*, 1-3 Novembre 2006.
- Fakhri, M. Abboud-Abi Saab, M., J.-C. Romano, 2006. Effet du Vent sur la Dispersion des Masses d'Eaux de la Rivière Al-Jaouz (Méditerranée Orientale) : Stratégie de la Drogue Dérivante. *WATMED3*, 1-3 Novembre 2006.
- Khalah, K., Abboud-Abi Saab, M., Fakhri, M., Rwayheb Mina, R., Mouawad, R., Nassif, N., Nakhlé, K. 2006. Report on testing Marine pollution Indicators in the Mediterranean region- LEBANON. CNRSL & UNEP, 19pp.
- Khalaf, K & Abboud-Abi Saab, M. (coordinateurs), 2007. Etude des paramètres physico-chimiques, bactériologiques et biologiques de la tâche B2/source S2 des sources karstiques de Chekka. CNRS/USJ-ESIB, 18pp.
- Abboud-Abi Saab, M., Fakhri, M., Kassab M.-T. & Matar, N. 2008. Développement exceptionnel des eaux colorées au printemps 2007 dans la zone côtière libanaise entre Zouk-Naher el kelb. *Leb. Sci. J*, 9(1) : 61-70.
- Abboud-Abi Saab, M., Fakhri, M., Sadek, E. & Matar, N. 2008. An estimate of the environmental status of Lebanese littoral waters using nutrients and chlorophyll-*a* as indicators. *Leb. Sci. J*, 9(1) :43-60.
- Fakhri, M., Abboud-Abi Saab, M., & J.-C. Romano, 2008. The use of sediments to assess the impact of Selaata phosphate plant on Batroun coastal area (Lebanon, Levantin basin). *Leb. Sci. J*, 9(1):29-42.
- Marie Abboud - Abi Saab, Gaby Khalaf, Milad Fakhri, Elie Tarek, 2009. Etat des lieux des cétacés dans les eaux côtières libanaises. First Biennial Conference on Cetacean Conservation in South Mediterranean Countries (CSMC1), ACCOBAMS in collaboration with the Regional Activity Centre for Specially Protected Areas (MAP/UNEP), Tabarka, Tunisia, 12 - 14 October 2009, p11.
- Milad Fakhri, Marie Abboud - Abi Saab, Gaby Khalaf, 2009. National action plan for cetaceans' protection and conservation in the Lebanese marine water, First Biennial Conference on Cetacean

Conservation in South Mediterranean Countries (CSMC1), ACCOBAMS in collaboration with the Regional Activity Centre for Specially Protected Areas (MAP/UNEP), Tabarka, Tunisia, 12 - 14 October 2009, p14.

- Marie Abboud - Abi Saab, 2009. Studies and changes of phytoplankton populations on the Lebanese coastal waters, CIESM Workshop on 'Phytoplankton Response to Mediterranean Environmental Change', 7 - 10 October 2009, Tunis, Tunisia. (In print)
- Khalaf G., Fakhri M., Abi-Ghanem C., Abboud Abi-Saab M. and Mina R. Impact of the anthropogenic activities on the deterioration of the coastal ecosystem of Beirut city, International Work-Shop on Impact of large coastal Mediterranean cities on marine ecosystems, Egypt, Alexandria, 10-12 February 2009.
- Abboud-Abi Saab, M., Fakhri, M., Kassab M.-T. & Matar, N. 2009. Effect of River input on the primary productivity in Lebanese Coastal waters: Case study of river Naher El Kalb. INOC Izmir Turkey, 20-22 October 2009) p28 (abstract).
- Fakhri, M., Abboud-Abi Saab, M., Romano, J.-C., Khalaf G. 2009. Evaluation of the impact of Selaata fertilizers plant and Al-Jaouz River on the variation of Batroun sea water characteristics (North Lebanon) at small temporal scale. INOC Izmir Turkey, 20-22 October 2009) p 40 (abstract).
- Marie Abboud- Abi Saab, Milad Fakhri, Marie-Thérèse Kassab, Nada Matar & Roula Mina. The effect of organic pollution on the environmental conditions and phytoplankton populations in the central Lebanese coastal waters. LAAS, 17th International Scientific Conference, 12-13 Nov. USEK, Liban).
- Marie Abboud- Abi Saab, Milad Fakhri, Marie-Thérèse Kassab & Nada Matar. Effect of distance from the coast on phytoplanktonic populations in Lebanese coastal waters during 2008-2009. International Conference on "Biodiversity of the Aquatic Environment "Towards a diverse and sustainable world" 13-15 December, 2010, Lattakia- Syria.
- Milad Fakhri, Gaby Khalaf, Marie Abboud Abi Saab, Roula Mina, Nada Matar, Joelle Nacouzi. Classification of the Lebanese coastal zone according to the level of pollution. International Workshop " Marine and Coastal Zone Environmental Management: Risk Analysis and Mitigation for sustainable growth (ERAM)". Egypt, 3-5 October 2010.
- Milad Fakhri, Marie Abboud-Abi Saab, Gaby Khalaf, Roula Mina. Lebanese water column pollution from the discharge of a waste water treatment plant. International Conference on "Biodiversity of the Aquatic Environment "Towards a diverse and sustainable world" 13-15 December, 2010, Lattakia - Syria.
- Marie Abboud- Abi Saab, Milad Fakhri and Gaby Khalaf .Vertical and temporal phytoplanktonic population's variability in the Lebanese marines waters (Eastern Mediterranean). SESAME, Final Scientific Conference Electra Palace Hotel, Athens, Greece, 4-8 April 2011.
- Marie Abboud- Abi Saab, Milad Fakhri, Marie-Thérèse Kassab. Seasonal and spatial variations of the dinoflagellate *Ostreopsis siamensis* in the Lebanese coastal waters (Eastern Mediterranean). ICOD - International Conference on *Ostreopsis* Development Scientific programme: 6th – 8th April 2011 (Abstract).
- Marie Abboud-Abi Saab, Milad Fakhri, Marie-Thérèse Kassab, Nada Matar, 2011. Temporal variations of tintinnids populations in Lebanese coastal waters between 2001 and 2011. Plankton 2011: September 22nd & 23rd 2011, Plymouth, UK, page P1 (abstract).
- Fakhri, M., Romano, J.-C., and Abboud-Abi Saab, M. (2011). Impact of wind on the dispersion of contaminants in the Lebanese northern marine area. *J. Black Sea/Mediterranean Environment*, 17(1): 32- 46.
- Marie Abboud-Abi Saab, Milad Fakhri, Marie-Thérèse Kassab, 2012. Effect of chemical input on the temporal and spatial abundance of tintinnid ciliates in Lebanese coastal waters (Eastern Mediterranean). *J. Black Sea/Mediterranean Environment*, 18 (3): 299-328.

- Fakhri, M., Abboud - Abi Saab, M., Khalaf, G., 2012. Water column contamination from discharge of wastewater treatment plant in south Beirut, Lebanon. *Journal of Environmental hydrology*, 20 (17):1-11
- Marie Abboud-Abi Saab, Milad Fakhri , Marie-Thérèse Kassab and Nada Matar , 2013. Seasonal and Spatial Variations of the Dinoflagellate *Ostreopsis siamensis* in the Lebanese Coastal Waters (Eastern Mediterranean). *Cryptogamie, Algologie*, 34 (1): 57-67.
- Marie Abboud Abi Saab, Milad Fakhri, Abed El Rahman Hassoun. Interannual variations of water and air temperatures in Lebanese coastal water, 2000-2012., 2014. International conference on “Oceanography and Sustainable Marine Production: A challenge of Managing Marine resources under Climate Change. INOC Kuantan- Malaysia, 29-31, October, 2013,96-104. In: Chouikhi A., eds, proceedings of ICOSMaP-2013, 572 pp.

One Book:

Abboud-Abi Saab, M. 2008. Tintinnids of the Lebanese Coastal Waters (Eastern Mediterranean), CNRS-Lebanon /UNEP/MAP/RAC/SPA, 192 pp.

Chapter in book

Marie Abboud-Abi Saab, 2012. Marine biodiversity in coastal waters, 1-29pp. In: Review and perspectives of Environmental studies in Lebanon. Ed. H. Kouyoumjian & M. Hamzé, INCAM-EU/CNRS, Lebanon pp328.

Douniazed MARZOUG

Curriculum Vitæ

Contact:

Associate Professor

Laboratory RESEAU DE SURVEILLANCE ENVIRONNEMENTALE

Département of Biology

Faculty of Nature science and life

University of Oran

31000 Oran / Algeria

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Academic title

- Diploma of engineer in biology (1991)
- Diploma of Magister (University of Oran, 2002).
 - o Theme: Contribution to the study of parasites of cetacean stranded in the Western Algerian coast
- Diploma of doctorate in science (University of Oran, 2012)
 - o Theme: Biodiversity and structure of parasite communities in two commercial fish species from western Mediterranean coasts of Algeria. Option: Marine Parasitology

Scientific activities in connection with the research project

- Research projects (2003-2007): first project as research officer. Project title: "Monitoring of pollution and nuisances affecting the coastal waters, fishery products, aquaculture and assessing their impact on the health human (n ° of the project; F: 3011/01/2002).
- The second project CNEPRU project (2007-2009) title: "network of observation of the quality of the marine environment by the use of biological indicators and diagnostic biosédimentaire of sites. The project #; F: 01820060065
- The third project CNEPRU searching "project title: conservation of cetaceans in the basin Algerian; N ° OF THE PROJECT: F: 01820100022

Communications

MARZOUG D., SENOUCI K. et BOUTIBA Z. - Parasitofaune d'un poisson pélagique: La Sardine (*Sardina pilchardus*, Walb., 1792) pêchés dans la baie d'Oran. Etude préliminaire. *1er Colloque Climat et Environnement de l'ARCE.15-19-17 Dec.1994, Oran, Algérie.*

BOUTIBA Z., MARZOUG D., ABDELGHANI F. - Stratégie Globale pour la protection de l'Environnement Marin. *Journée Mondiale de la Mer, 26 Nov 1995. Phoenicia Port d'Oran.*

BOUTIBA. Z., ABDELGHANI F. et MARZOUG D. Parasitologic information on Cetacea in Algerian Coast. *European Cetacean Society - 10 th Annual Conference, Lisbon (Portugal), 11 -13 March 1996.*

- BOUTIBA Z., HAMOUTENE D., MARZOUG D., BOUDERBALA M., TALEB M. Z et ABDELGHANI F- Le Rorqual Commun (*Balaenoptera physalus*) dans le Bassin sud de la Méditerranée Occidentale. États actuel des Observations, *Rimmo 5 -15 Nov 1996. ANTIBE France*
- MARZOUG D., BOUTIBA Z. et SENOUCI K. Indices parasitaires au cours d'un cycle annuel des Trématodes et des Cestodes chez la Sardine (*Sardina pilchardus*, Walbum, 1792) de la côte Ouest Algérienne. *2èmes Journées Maghrébines des Sciences de la mer. Agadir, Maroc, 20-22 Décembre 1997.*
- MARZOUG .D, BOUTIBA Z et J. A. RAGA. Identification des larves d'Ascarides: *Anisakis simplex* (Rudolphi, 1809) de la sardine (*Sardina pilchardus*, WALBAUM, 1792) des côtes algériennes. *L'Océan (Préparation à l'EXPO 98, LISBON). Hôtel Hilton. Alger, 08-09-10 et 11 mai 1998.*
- MARZOUG D., BOUTIBA Z. et SENOUCI K. Parasitofaune d'un poisson semi pélagique : la Bogue (*Boops boops*, LINNE, 1758), dans la côte ouest algérienne. *3èmes Journées nationales Tunisiennes des Sciences de la mer.(BIZERT, Tunisie, 19-20-21 Novembre1998.*
- TALEB, M. Z., BOUDERBALA, M., MARZOUG, D. & BOUTIBA, Z. Etude de certains facteurs de mortalité des Cétacés des côtes algériennes. *3èmes Journées Tunisiennes des Sciences de la Mer, 19- 20-21 Nov. 1998 (Bizerte, Tunisie)*
- MARZOUG .D, BOUTIBA Z et J. A. RAGA. Some Helminth parasites from small Cetaceans off Algerian waters. *13th Annual Conference off European Cetacean Society .Valencia, Spain, 5- 8 April 1999.*
- MARZOUG, D. et BOUTIBA, Z. Contribution à l'étude des endoparasites chez la bogue (*Boops boops*, L) de la côte ouest algérienne. *Salon National de la pêche, 9-11 Juillet 2000 (Oran, Algérie).*
- MARZOUG. D; BOUTIBA. Z. Parasitofaune des Cétacés des eaux algériennes : *Rimmo 13 -14 Nov 2004. NICE France*
- MARZOUG .D; MASTOR.H & Z. BOUTIBA. « Digènes (Fellodistomidae, Hemiuridae) de la Sardine (*Sardina pilchardus*, Walb, 1792), dans la côte Occidentale Algérienne »*Workshop International sur la Biodiversité et écosystèmes littoraux Bel 01 29_30 Novembre 2007 Oran.*
- MARZOUG.D ; SOUILAH.C ; BOUTIBA.Z ET MAAROUF.L Etude épidémiologique et statistique comparative des parasitoses »*Congrès de parasitologie et de Mycologie. 17, 18 et 19 juin 2009. Faculté de Médecine et de Pharmacie de Poitier, France.*
- MARZOUG.D et Z. BOUTIBA. « Échouages et parasitoses des Cétacés de la côte occidentale algérienne ». *BEL 02 .2^{ème} COLLOQUE INTERNATIONAL SUR LA BIODIVERSITE ET ECOSYSTEMES LITTORAUX .Les 28, 29 et 30 Novembre 2010, Oran, Algérie.*
- MARZOUG D., Zitouni BOUTIBA, Aneta KOSTADINOVA, Ana PEREZ-DEL-OLMO. "Impact of fishing *Boops boops* (Ileosteii : Sparidae) on Parasite Communities at two Mediterranean localities" *3 ème Journées du Réseau RASMER, Oran 6-7 Juin 2012.*
- HALFAOUI K.; D. MARZOUG ; Z. BOUTIBA ; Ana PEREZ DEL OLMO. Etude de la biodiversité parasitaire de la sardine (*Sardina pilchardus*) pêchée dans les côtes algériennes. *BEL 03. 3^{ème} COLLOQUE INTERNATIONAL SUR LA BIODIVERSITE ET ECOSYSTEMES LITTORAUX 26, 27 et 28 Novembre 2013, Oran, Algérie.*

Publications:

- MARZOUG .D, BOUTIBA Z et J. A. RAGA. "Some Helminth parasites from small Cetaceans off Algerian waters. *Actes of 13th Annual Conference off European Cetacean Society .Valencia, Spain. P110_116"*

- MARZOUG D. • Zitouni BOUTIBA • David I. GIBSON • Ana PE´REZ-DEL-OLMO • Aneta KOSTADINOVA. “Descriptions of digeneans from *Sardina pilchardus* (Walbaum) (Clupeidae) off the Algerian coast of the western Mediterranean, with a complete list of its helminth parasites.” *Systematic Parasitology* (2012) 81:169–186.

- MARZOUG D. • Zitouni BOUTIBA • David I. GIBSON • • Aneta KOSTADINOVA & Ana PE´REZ-DEL-OLMO. Effects of fishing on parasitism in a sparid fish: Contrasts between two areas of the Western Mediterranean » *Parasitology International* 61 (2012) 414–420.

- MARZOUG D. • Mohamed RIMA • Zitouni BOUTIBA • Simona GEORGIEVA • Aneta KOSTADINOVA • PE´REZ-DEL-OLMO “A new species of *Saturnius* Manter, 1969 (Digenea: Hemiuridae) from Mediterranean mullet (Teleostei: Mugilidae)3. *Systematic Parasitology DOI 10.1007/s11230-013-946,2014*

Zitouni BOUTIBA

CURRICULUM VITAE

Contact:

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Faculté des Sciences de la Nature & de la Vie, Université d'Oran, Algérie.
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E-mail: zitouniboutiba@yahoo.fr

Academic Formation

- Graduate diploma: D.E.S.; Option: Marine biology, June 1976, University of Oran, Algeria.
- Certificate of Equivalence to M.SC. in biology issued by the University of Paris 7 (France), May 1985.
- Master in Zoo-palaeontology (Structures and functions in the development of the vertebrates), September 1985, University of Paris 7 (France).
- Magister in biology marine. University of Oran, Algeria. May 1979.
- State Doctorate ès-Science in environmental science (Option: marine biology) University of Oran, June 1992.

Functions

- Contractual assistant (1976-1977), University of Oran
- Senior lecturer (1977-1984), University of Oran
- Lecturer (1984-1992), University of Oran
- Docent (1992-1998), University of Oran
- Professor (from 1998), University of Oran.

Administratives and Pedagogical Functions

1980-1982: Head of Department of animal biology, Univ. Oran.

1982-1984: Assistant Director for the pedagogy and head of Department of Animal biology, I.S.N., Univ. Oran.

1987-1990: Deputy Director of the Institute of Natural Sciences, University Oran.

1995-1999: Director of the Institute of Sciences of Nature (University. of Oran)

1999-2003: Dean of the Faculty of science, University of Oran

2004-2011: Member of the Board of Directors of the University of Oran.

2000-2012: Member of the Board of Directors of the Faculty of Sciences of Oran

2003-2013: Member of CSP, Expert CNEPRU; Ministry of higher education and scientific research

2008-2013: Member of the Scientific Council of the National Centre for research and development of fishing and Aquaculture CNRDPA, Ministry of fisheries and fish resources.

1993-2012: Member of the Scientific Council of the Association RIMMO, Antibes France.

2007-2013: Member of the Scientific Committee of the ACCOBAMS Agreement. Monaco.

2000-2013: scientist of the Faculty of Science, University of Oran Board member.

2013-present: Member of the Scientific Council of the Faculty SNV of Oran.

Research Activities: (national research projects, cooperation projects and sector projects,...):

1998- to now: Director of Research.

2000-present: Director of the laboratory on environmental monitoring network

Responsible for 07 national research projects

- Project UNEP: United Nations Programme, Action Plan for the Mediterranean (PAM), RAC - Tunis, Tunisia. Title: ACTION PLAN on the implementation of a PROGRAMME of data collection on the Mediterranean Monk Seal"
- Others projects and research programmes 2006-2017 with CNEPRU, PNR, AUF, CRDI, UE, ACCOBAMS.

Supervision of thesis from 1993 to 2014:

Thesis of Magister supported: **77 submissions.**

Thesis of doctorate supported: **26 PhDs**

Communications and Publications

1. Communications : **177**
2. Scientific papers: published :**154**

3. Scientific books 08

- KIHAL M., A.K. AL ABOUDI; D. HENNI; A. BENSOLTANE et Z. BOUTIBA, 2001. Microbiology of water and pollution of the aquatic environment - Ed. Dar El Gharb, Algeria-168 p.
- BOUTIBA, Z, TALEB, M, Z, ABI AYAD, S.M.E.A, 2003- State of marine pollution of Oran coast. Ed. Dar El Gharb. Algeria): 69 p.
- BOUTIBA, Z, 2003 - dolphins and whales of Algeria. Ed. Dar El Gharb (Oran - Algeria): 110p.
- GRIMES M., BOUTIBA Z, BOUDERBALA M, BOUDJELLAL B, BOUMAZA S, BOUTIBA M, GUEDEIOURA A, HAFFERSSAS, HEMIDA F, KAÏDI N, KHELIFI B., KERZABI F., MERZOUG A., NOUAR A., SELLALI B., SELLALI- MERABTINE ; H SEMROUD, SERIDI H, TALEB M.Z., TOUABRIAT T.-2004 : Marine biodiversity and coastal Algeria - Ed. SONATRACH-Ed. DIWAN, Alger-362p.
- BOUTIBA, Z, 2004 - last seals of Algeria. Ed. Dar El Gharb, Algeria: 228p.
- BOUTIBA, Z., 2004 - what about the marine environment. Ed. Dar El Gharb. Oran, Algeria: 220pp.
- BOURAS D et BOUTIBA Z., 2004- -Ecology: Discipline of impact. Ed 3 apples - Algeria: 115 p.
- ROUANE-HACENE O, BOUTIBA Z. & RISSO C., 2013- approach multimarkers applied in marine Biomonitoring. Edition PAF French academic press, France: 364p.

Organization of international scientific events organized by the research Laboratory LRSE:

- 1st International Workshop on biodiversity and ecosystems beautiful coastlines 01 27-28-29 November 2007, Oran-Algeria
- 2nd Symposium International on biodiversity and ecosystems beautiful coastlines 02 28-29 & 30 November 2010, Oran-Algeria.
- 03emes World Oceans JMO days organizing the 07 - 08 - June 2012, Oran-Algeria
- 3rd International Symposium on biodiversity and the ecosystems coastlines BEL 03last 27-28-29 November 2013, Oran-Algeria

Award Distinction:

- Awarded by the Rector of the University of Oran on the student day, May 19, 1996.
- Awarded by the European Cetacean Society (ECS), the 11th annual, Stralsund (Germany), 10-12 March 1997.

- Major of the national promotion of professor (1998, MESRS, Algiers).
- "International price of the marine world ", presented by the International Association of underwater activities CMAS, 1998, Rome (Italy).
- 2005: Award of merit of the "Marine Environment Protection", Ministry of territorial management and environment. December 2005.
- 2010: Award of merit for" the promotion of the preservation of the marine world in Algeria." DGRSDT, (MESRS, Algiers).



Evaluation Form / *Formulaire d'évaluation*

International Training Courses on Marine Molecular Taxonomy

Cours international sur la taxonomie moléculaire marine

Mostaganem, ALGERIA, October 2014

Kindly give us your feedback on the Training Courses by filling this evaluation form:

Vous êtes priés de nous donner votre avis sur ce cours en remplissant ce formulaire d'évaluation

1. To what extent were the issues in this Training Courses of relevance to your field of work and expertise?
Dans quelle mesure les thématiques de ce cours se rapportent à votre domaine de travail et d'expertise ?
 Significantly/*significativement* Fairly/*assez* somewhat/*légèrement* Not at al/*pas du tout*
2. To what extent was the Training Courses agenda focused on its objectives?
Dans quelle mesure le programme de ce cours a été centré sur ses objectifs ?
 Significantly/*significativement* Fairly/*assez* Somewhat/*légèrement* Not at al/*pas du tout*
3. Has the Training Courses been up to your expectations? *le Cours a-t-il répondu à t-il été à la hauteur de vos attentes ?*
 Significantly/*significativement* Fairly/*assez* Somewhat/*légèrement* Not at al/*pas du tout*
4. Was the duration of the Training Courses sufficient ? / *la durée du cours était-elle suffisante ?*
 Significantly/*significativement* Fairly/*assez* Somewhat/*légèrement* Not at al/*pas du tout*
5. How do you rate the quality of contents of courses? / *Comment évaluez-vous la qualité des contenus des cours?*
 Significantly/*significativement* Fairly/*assez* Somewhat/*légèrement* Not at al/*pas du tout*
6. How do you rate the quality of discussions? / *Comment évaluez-vous la qualité des discussions?*
 Significantly/*significativement* Fairly/*assez* Somewhat/*légèrement* Not at al/*pas du tout*
7. How do you rate the quality of the lecturers? / *Comment évaluez-vous la qualité des encadreurs?*
 Significantly/*significativement* Fairly/*assez* Somewhat/*légèrement* Not at al/*pas du tout*
8. How do you rate the level of participants/participation? *Comment évaluez-vous le niveau des participants/ participation ?*
 Significantly/*significativement* Fairly/*assez* Somewhat/*légèrement* Not at al/*pas du tout*
9. How do you rate the quality of organization of the Training Courses? / *Comment évaluez-vous la qualité de l'organisation des cours*
 Significantly/*significativement* Fairly/*assez* Somewhat/*légèrement* Not at al/*pas du tout*
10. Any other comments ? / *y a t-il d'autres commentaires ?*

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