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Discussion Note

The Demarcation of Species: Ontological Aspects of the Human Incarnation.

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ABSTRACT

While human beings are without any doubt orders of magnitude removed from animals in the degree of development, no difference in *degree* alone can constitute a difference in *kind*. The formalization of this phenomenological inability to define the demarcation of species is not only of utmost highest importance with respect to the conception of human dignity but also to the ethical classification of the human ability to design hybrid-creatures. The heuristic principle of inability motivates an ontological consideration suggesting an unambiguous species-barrier defined by a *generic* and *specific* analysis of the human incarnation.

Keywords: human dignity, hybrid-creature, mankind, homo sapiens, species-barrier, phenomenology, ontology, monotheistic book religion, Adam

1. INTRODUCTION

Human dignity is an integral part of the human self-conception. According to the basic beliefs of Jews, Christians and Muslims as well as common principles of civilization and convictions of representatives of other religions, the human dignity is an absolute *constant*. Therefore, it is not a *variable* in a function of a specific physical or mental condition, nor of a special performance and not of social characteristics in any way. Human dignity is an essential feature of mankind and totally independent of any consensus, regardless of particularities of the situation, time, place or other circumstances. However, with more than 20 scientific concepts presently in circulation, the debate over how species should be defined to accommodate biodiversity findings with established paradigms in conjunction with ethically critical biotechnology capabilities in terms of designing hybrid-creatures is in a dynamic process (Claridge et al. 1997; Mayden 1997; Howard/Berlocher 1998).

2. CLASSIC SELF-CONCEPTION

The classic self-conception of the human genus is characterized by seeking an unambiguous demarcation between human and animal. In biology, e.g., every organism is classified as a specific *genus* (taxonomically) and *species*.[1]

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[1] E.g., the genus of chimpanzee (*Pan*) comprises of two species, *Pan troglodytes* and *Pan paniscus*.

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For a long time in human cultural history, this rather constant concept of given categories which were defined by external distinctions proved to be sufficient.[2]

Since the 19th century however, biology shifted more and more to the concept of variation where evolution manifests itself within respective species yielding to more differentiated species, e.g., caused by epigenetic environmental agents.

Population Genetics

But regardless of the latter, the current population-genetic concept is defined as *reproductive community* with reproductive isolations between species, i.e., mating between different species either doesn't take place or yields infertile descendants.

Looking at the genetic, molecular-, and cell-biological layer, it allows specifying close relations as well as differences, e.g., human and chimpanzee share roughly 99% of their genetic code (Chimpanzee Sequencing and Analysis Consortium 2005). Nevertheless, obvious differences are apparent with regard to anatomy, physiology, as well as behavior and cognition so that the analysis of differences focuses more and more on complex systemic means of differentiation, namely on gene-triggering, which impact the latter has on the created proteins, and how the organization of gene-networks and cell-communities differentiates.

But the species-barrier does not only become evident with genetic methods in laboratory environments:

Mammals, e.g., defend it by species-specific immunological reconnaissance mechanisms which recognize proteins of foreign species and eliminate them, i.e., if non-conspecific proteins are injected into the blood of an adult organism, a severe immune-reaction is observed. Based on the same mechanism, transplants of non-conspecific cells and tissue are rejected and removed from the receiving body.

It would be tempting to define a biological *genus* simply as an empirically observed, closed reproduction- and descendant community which represents a genetic, ecological and evolutionary unit. In general, this unit should then share the same characteristics as far as anatomy, physiology, immunology, behavior, and cognition is concerned.

But this demarcation is sustainably challenged, namely with the ability to design hybrid-creatures for therapy research, preclinical studies or in the curative sector (Taupitz/Weschka 2009).

Typically, the differentiation of Homo sapiens refers to the peculiarity of certain characteristics such as the faculty of speech, self-awareness, cultural ability, and most important: Morality.

The demarcation of human and non-human life is hence commonly set to be of cultural, legal and ethical exception.

However, not only evolution theory disputes this demarcation in its very conception, but also modern behavioral- and social biology:

3. BEHAVIORAL BIOLOGY

Language Ability

The observation of numerous monkey species, whales, dauphins, and elephants demonstrated a rich repertoire of different lutes and gestures, e.g., for describing different feeds or feed-enemies (Syfarth/Cheney 2010).

Some monkeys and parrots even learned comprehensive words and human grammar (Savage-Rumbaugh et al. 1993; Pepperberg 2002; Kaminski et al. 2004.)

The ongoing debate concerning the ability of language focuses on the

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[2] E.g., the monotheistic tradition of the deluge where *Noah* rescued animals according to their different genus.

creation of symbols and their grammatical combination and tries to measure complexity and abstraction with the ability to express the past and the future which is assumed to be exclusively reserved to the human species.

In this differentiated sense, language obviously became the carrier of religion, and the driving force of science, technology, and arts.

Self-Awareness

Self-awareness is the ability to take an observational and reflexive position to oneself. Phenomenologically, it can be described as a meta-condition of ones consciousness which includes a sensing of cognition, emotions, memories, and thoughts, i.e., self-awareness is thinking about thoughts.

Although empirical research on non-human subjects without the ability of differentiated, reflexive communication is limited to behavioral methods, a lot of animals show meta-cognition and reflection of their own thoughts as well that of other individuals of their species (Smith 2009; Dally et al. 2006; Clayton et al. 2007; Stulp et al. 2009).

The Ability of Culture

The ability of culture is a very vague concept which may include the use of tools, language, the development of scripture, contemplation, the esthetical treatment of objects and their "misappropriation", or - in a nutshell, just the ability to gather knowledge and abilities through learning by observation and teaching.

In this basic sense, primates, dauphins, whales, and other mammals as well as some birds do have the ability of culture for they teach each other what they learned themselves (Markl 2009).

Morality

Traditional philosophy describes moral as an ability which is unique to humans, hence, it sets morality equal to the demarcation of human to non-human genus.

Modern social-biology however is in line with *Darwin* who believed as soon as 1871 already that natural selection would also include human social and moral behavior as long as it would be of advantage for the species (Darwin 1993), i.e., the human ability of morality is assumed to be a result of the same evolutionary principles which underlie their anatomy and physiological functions (Schmitz 2000).

In this sense, a rudimentary concept of fairness, empathy, and altruism has been observed in the behavior of, e.g., dogs which showed a negative reaction when other dogs were rewarded more than themselves for the same task (Range et al. 2009). Chimpanzee even show altruistic behavior by helping others, even foreigners, although there is no anticipation of any reward and although the help they provide may take a big effort (Warneken et al. 2007; Warneken/Tomasello 2009).

4. ONTOLOGICAL ASPECTS

As discussed in the previous sections, defining a mere phenomenological demarcation between humans and animals therefore necessarily yields evidence that mankind is linked to an organic world with strong physiological, behavioral, and genetic resemblance with the very substance of his body being constituted down to the components of inorganic chemistry (Farrar 1864).

Because it is decisive whether an entity is pheno- and genotypically perceived as a human being, as an animal, or as a laboratory-hybrid-creature of unknown species attribution, the sensual perception (phenomenological intuition) of the demarcation must be balanced with an unambiguous abstract conceptual representation rooted in a consistent ontological consideration.

The Heuristic Principle of Inability

The crucial point to define the species-barrier throughout the whole debate with phenomenological concepts alone consists of having *recognized* the constraints imposed by holding to any idea of *development degree*, but having *failed to interpret* this constraint *formally*.

While human beings are without any doubt orders of magnitude removed from animals in the degree of development, the *heuristic principle of inability* (Daghbouche 2012a) accounts for this persistently failing approach by declaring the inability to define a mere phenomenological demarcation as an axiom:

No difference in *degree* can constitute a difference in *kind*.

A heuristic discussion of the species-barrier must from now on incorporate ontological assumptions which reside outside any phenomenological reach.

The Ontological Principle

The *ontological principle* (Daghbouche 2012b) allows an analytical investigation of ontological assumptions:

While it is impossible for any perceiving subject to perceive reality on principle (epistemologically), an inversion of this process yields the logical possibility of an ontological manifestation, i.e., reality may manifest itself without being subject to any epistemological restriction. Methodologically, any projection of perceiving subjects between language and perceivable (empiric) or imaginable phenomena can be classified as a hypothetic deduction (Popper 1994) while any manifestation of ontology can be regarded as axiomatic declaration with statements about ontology itself but also about the empirically real.

Applied to the current discussion, it simply motivates the consideration of revealed axioms and its specific implications.

5. AXIOMATIC DEMARCATION

A sufficient axiomatic demarcation necessarily needs to address the *generic* incarnation of the human species *per se* along with the *specific* incarnation of the individual human being in the process of human embryogenesis and fetal development.

Incarnation of Human Species

With a broad consensus within the monotheistic book tradition on Adam *generically* representing the first human being (Genesis 2:7 and 1 Cor 15:45), Quran 2:37 additionally states:

2:37 Then Adam received from his Lord [some] words, and He accepted his repentance. Indeed, it is He who is the Accepting of repentance, the Merciful.

While the aspect of Adam having received *words* may further strengthen the phenomenological concept of language ability, the abstract ontological representation only looks at the mere fact of Adam having *received* something. It is this very reception which suggests to redefine the demarcation of species with a stringent ontological causality:

Adam was the first *generic* individual of the human species *because* he was the first human-like subject of an ontological manifestation.[3]

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[3] c.f. Adam as first Prophet in Islam: Wikipedia contributors. "Adam in Islam." Wikipedia, The

Incarnation of Human Individual

With regard to the *specific* incarnation of the individual human being, Quran 23:12-14 states:

23:12 And certainly did We create man from an extract of clay.
23:13 Then We placed him as a sperm-drop in a firm lodging.
23:14 Then We made the sperm-drop into a clinging clot, and We made the clot into a lump [of flesh], and We made [from] the lump, bones, and We covered the bones with flesh; then We developed him into another creation. So blessed is Allah, the best of creators.

This statement about the human embryogenesis and fetal development is further detailed in the reported tradition[4] of Muhammed (saw)[5] which is part of the axiomatic basis (Abdelwahab et al. 2014) where the periods between the stages mentioned in the Quran are further specified:

Sayyiduna Abd Allah ibn Masud (Allah be pleased with him) narrates that Muhammed (saw) said:

"Each one of you is constituted in the womb of the mother for forty days, and then he becomes a clot of thick blood for a similar period, and then a piece of flesh for a similar period. Then Allah sends an angel who is ordered to write four things. He is ordered to write down his deeds, his livelihood, his (date of) death, and whether he will be blessed or wretched (in religion). Then the soul is breathed into him…" (Sahih al-Bukhari)[6].

Based on the above axioms, the inferred period from the fertilization of the human egg cell with human sperm to the *specific* incarnation of the individual human being is conditioned with the soul entering the fetus. Accordingly, the *specific* demarcation-axiom reads:

The organic transition from a human egg cell and a human sperm to a human being takes place at around four months (120 days) after fertilization.

6. CONCLUSION

Balancing the phenomenological demarcation of the human species with an ontological one yields a clearly defined species-barrier with as well as both, a pheno- and genotypic perception (phenomenological intuition) and an unambiguous abstract conceptual representation in terms of a generic- and specific incarnation of the human being.

While defining the *generic* human incarnation may enhance evolutionary evaluations with direct implications for the observance of human dignity, the definition of the *specific* human incarnation may contribute to social and ethical considerations with regard to abortion and to designing hybrid-creatures in laboratory settings (Deutscher Ethikrat 2011).

As for the latter, the so-far inferred line of demarcation applies for *human* egg cells and *human* sperms only where the

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Free Encyclopedia. Wikipedia, The Free Encyclopedia, 29 Oct. 2014. Web. 11 Nov. 2014.

[4] *Sunnah* is the specific term that refers to the Mohammed's (saw) example and guidance as a prophet, whether verbally or practically, recorded in writing and validated as *hadith* (cf. Wikipedia contributors. "Hadith." Wikipedia, The Free Encyclopedia. Wikipedia, The Free Encyclopedia, 29 Dec. 2014. Web. 30 Dec. 2014)

[5] saw = sall Allahu 'alay-hi wa-salaam = may God pray on him and grant him peace (a traditional saying after mentioning his name)

[6] c.f. Wikipedia contributors. "Fetus." Wikipedia, The Free Encyclopedia. Wikipedia, The Free Encyclopedia, 28 Dec. 2014. Web. 28 Dec. 2014.

genetic material is clearly defined with exclusively human origin.

It is strongly advised for further investigation to discuss the combinatorial possibilities and laboratory procedures such as transplantation, somatic cell nucleus transfer, gene transfer, chromosome transfer, embryo merger, and gamete fusion (Taupitz/Weschka 2009) to assess a valid application of the here presented ontological axioms.

It is intuitively anticipated that the axioms for the *specific* human incarnation hold, i.e., that the maximum permissible development time of any combination of human and non-human materials in the process of fetal- or embryogenesis is set to 120 days.

As for the transplantation of cells, tissues or organs of a species in a host organism of another species, one should distinguish whether the transplant was performed in an organism *after* differentiation of its organ systems or whether the materials of both organisms were pooled *prior* to an organ development (embryonic chimeras) so that a joint development took place.

In the first case, transplanted materials must be part of an already complete and functioning recipient organism, e.g., the transmission of human cancer cells in a mouse so that the application of the 120 days axiom doesn't seem problematic.

In the second case of embryonic chimeras however, whole organs or organ systems may consist exclusively or predominantly of cells from one kind or another, or evolve into hybrid forms to which they contribute cells of both species. The germ cells of the mature organism can then be derived from one of the species or even both. This can lead to an organism that seems to belong to a certain kind (phenotypically) but produces eggs or sperm of another species (genotypically).

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Full Length Research Paper

Morphological and Molecular Identification of the Fungal Population at the *Alder Ain Khiar* (*El Kala* National Park, North Eastern Algeria)

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ABSTRACT

The National Park of El Kala, covers and preserves around 70% Alder surfaces, counted in Northern Africa. Those wetlands have been described within "Ramsar" international program, for hosting a natural heritage of major concern; or moreover, a hotspot for both Alder diversity, and their associated mycetes. Among the so-identified Alders, we have chosen Ain-El-Khiar area, in order to realize our investigation project. Our attempt to describe the ectomycorrhizal fungi specific diversity is basically related to the humidity gradient effect on ectomycorhizic communities, as well as the identification of potentially adapted ones toward xero-resistance. On the other hand, we aim to compare this diversity to refugia and non-refugia, already studied in Europe. Fungal genetics will be characterized by standard molecular typing of fruiting bodies and mycorrhizae.

Keywords: Alder Ain Khiar, ectomycorrhizae, molecular typing, ITS sequencing, fruiting bodies

1. INTRODUCTION

Alder trees are known to host a little diverse community of specific ectomycorhizic mycetes. In addition, gene-mapping studies have highlighted areas of glacial refugia (Carpathians, Caucasus, Corsica, Algeria) for the Alders, described as areas where these species have been present for a long term, so stable even in ice age (King & Ferris 1998). In the National Park of El Kala, glutinous Alder (*Alnus glutinosa*, Betulaceae) colonize permanent or intermittent wetlands, structuring an ecosystem of high ecological, biological and paleoecological interest. They develop around the lakes, on landing surfaces, wadis and in the dune/lake contact areas, or at the upwelling of groundwater accumulated in reservoirs formed by the dunes. Taken together, Alder National Park is a natural hymidity gradient for associated microbial communities.

Furthermore, if the National Park of El Kala is a glacial refuge for Alders, it should be expected that their genetic diversity is strongly compared to re-colonized areas such as southern France, the ectomycorhizic communities are consequently supposed to be highly diversified. The study of genetic diversity inside ice refugia has already been conducted with mycetes like truffle (Murat et al. 2004), but never been applied on community scale, nor in thermophilic refugia similar to Algeria.

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The comparison of various refugia leads to valorize Alders particularities in Algeria.

We use conventional methods of fruiting bodies molecular typing and mycorrhizae identification, in comparison to data already acquired on Alder communities in Europe (especially France) (Roy et al. 2013). Sampling of mycorrhizae and fruiting bodies is made at Ain-El-Khiar Alders first. Then it will be spread to other sites from the National Park of El Kala context.

Soil samples are taken for pedological analysis (pH, C / N, N, P, K, Ca, Na) and physicochemical analysis of water. In order to contribute establishing mycological inventory of the National Park, observed fruiting bodies will be described on each visited parcel.

2. MATERIALS AND METHODS

Face to the obvious signs of Ain-El-Khiar Alders decline, maintaining the forest has become an important heritage issue. National Park of El-Kala in collaboration with "*Evolutionary and Functional Ecology*" laboratory (University of El Tarf), suggests an innovative and interesting study, trying to determine the health status of our study site: Ain-El-Khiar Alders.

Our main topics for this investigation are:

- To identify the forest mycological richness (fruiting bodies and Ectomycorrhizae) using the molecular technology.
- To study the decline of Alder using fungal bio-indication.

Criteria of the Study-Site Choice

We chose Ain-El-Khiar Alders station (National Park of El Kala) to achieve our mycological surveys. As there is almost no mycological data available at the El Kala National Park, fruiting bodies and ectomycorrhizal collection was performed at the scale of an experimental device, which gather crops on a small surface area, to avoid long and tiring prospecting time by one side, and not to underestimate different species relative importance.

Choice of sampling protocol

We chose a sampling mode that can best meet our objectives. The sample units were selected, according (Arnolds 1981), by vegetation units ranging from 100 to 5000m^2; depending on the environmental description on the site, from a minimum area of 100m^2, we have divided our sampling site into 5 plots with an area of 100m^2 (Fig. 1).

Figure 1: Ain Khiar

The protocol chosen for our study is based on random transects (Favre 1948), allowing a complete inventory covering the species hosted in the chosen site various plots. Transect was arranged on the decline in Alders presenting an interesting humidity gradient.

Fruiting bodies collecting approach

In order to achieve an exhaustive inventory, regular visits scheduled at about one prospecting weekly, throughout the experimental device during the fall season, starting from October 2012 until October 2013. We have focused surveys on the fall because of fungal ecology, as fruiting bodies materialize mostly in autumn. Surveys more spaced in time (one visit per month) have still been conducted during other seasons in the year. Therefore, these visits allow to dwell on more hidden and tardily fruiting species, mycelia under bark or fallen to the ground dead stumps, or arboreal species fruiting at the time.

Species determination was performed requiring microscopic screening compared to consulted literature. Fruiting bodies of most fungi encountered were kept as *exsiccata* (personal collection of R. DJELLOUL), along with descriptive notes and *in situ* photographies. Regarding typing sporophores on the 72 species identified, 18 were subjected to molecular analysis.

Laboratory morphotyping of fruiting bodies

A fragment of the harvested fruiting bodies is placed in an Eppendorf tube filled with 150µl of CTAB higher for DNA extraction. The tube was kept in a freezer at a temperature of +4°C.

Ectomycorrhizal Harvesting

As part of our study, the molecular analysis of ectomycorrhizal although more destructive, is a method that has the advantage of more accurately describe the composition of fungal communities.

Harvesting Roots

Within the limit of allotted time to the study, two samplings of Alder roots campaigns were conducted: the first on December 24th, 2013 at the vegetative recovery, and the second on June 4th, 2013.

Roots were harvested below the organic layer of the soil to a depth of 15 to 20cm. The removal of mycorrhizae at 5 stations (ST1, ST2, ST3, ST4 and ST5) was performed according to protocol (Gardes 2002).

During the sampling campaigns, 168 mycorrhizae were taken from the roots of Alder (*Alnus glutinosa*), as following: 90 December and 78 June; among them, only 76 were typed: 39 from December sampling, and 37 from June, whereas, the typing reached a success rate of 45.20%.

Laboratory Ectomycorrhizal Morphotyping

Back at the laboratory, roots are thoroughly washed in running water to remove residual soil to allow better observation of ectomycorrhizae under the binocular loupe. Then, ectomycorrhizae are separately removed using forceps under a dissecting microscope and stored individually in a microtube containing 100µl of CTAB Extraction Solution [Nucleic Lysis Solution (Promega)]. Each ectomycorrhizae labeled (site number and mycorrhiza number) and typed according to morphological criteria (color, dichotomous aspect, simple or branched, turgid, downy... presence/absence of mycelium contact). The choice of mycorrhizae is random, endeavoring to draw 2-3 mycorrhizae similar by root fragment. Broken mycorrhizae, wilted in damaged apex are avoided. 16 per tree mycorrhizae (minimum required by the sampling plan) are taken. Once collected, ectomycorrhizae are then stored in the laboratory at +4°C.

Molecular characterization of collected ectomycorrhizae and fruiting bodies

Molecular analysis of ectomycorrhizae and fruiting bodies to classify the collected individuals use modern molecular techniques. Such a specific characterization is carried out by studying the polymorphism of the ITS region (Internal Transcribed Spacer) from nuclear ribosomal DNA using Nested PCR-RFLP (Polymerase Chain Reaction-

Restriction Fragment Length Polymorphism) and ITS sequencing.
This part of research work was performed at the "Evolution and Biodiversity laboratory", Paul Sabatier University, Toulouse, France.

• DNA extraction
We adopted of Gardes (2002) technique to extract DNA from both ectomycorhizae and fruiting bodies.

• Amplification
ITS region of the nuclear ribosomal DNA was amplified by nested PCR corresponding to two successive PCRs, using two sets of primers: NS5 ITS4 and ITS4, ITS1-F.
The first PCR with universal primers and NS5 ITS4 (White 1990), allows the ribosomal DNA amplification for plants and the fungi; the second one intends to amplify fungal nuclear sequence using the primer ITS4 and the primer specific ITS1-F fungi (Gardes & Bruns 1996).
The amplification reaction is performed by adding 2µl of DNA diluted to 1 / 10th in a 23µl reaction mixture containing 5µ 5x buffer 0,5µl 10 mM dNTP, 50 mM ITS4 and NS5 (or ITS1-F) 50 µm, 0,2µL GoTaq of 5µ / µl and 16.5µl of sterile water.
The amplifications are carried out in a thermocycler Eppendorf Master Cycler, according to the following programs:

PCR 1: DNA undergoes an initial denaturation of 3 minutes at 95°C; followed by 5 cycles of three steps (30 s of denaturation at 95°C, primers binding for 30s at 52°C, DNA elongation during 1:30 minute at 72°C); 30 times at 51°C to fix the primers. A final elongation of 10 minutes at 72°C ends in the synthetic route chains. The samples are kept at +4°C afterwards.

PCR 2: an initial denaturation of 3 minutes at 95°C is followed by 5 cycles of three steps (30 s denaturation at 95°C, primers binding for 30s at 56°C, DNA elongation for 1 minute 30 s at 72°C); the same cycle is repeated 25 times at 55°C for the primers fixation, followed by 10-minute final elongation at 72°C. the samples are then kept at +4°C.
Amplification quality and quantity are checked by electrophoresis of a loading buffer aliquot + 2µl of 1µl agarose gel prepared with 1.5% of 0.5X TAE buffer (0.02 M Tris-acetate, 0.05mM EDTA) containing 0.10 ug/ml ethidium bromide.
Electrophoresis is conducted in 0.5X TAE buffer (0.02 M Tris-acetate, 0.5mM EDTA) at a potential of 100V. To estimate the amplified fragments size, a molecular weight marker (100pbladder, Promega) is used to migrate in parallel to the amplification products. The DNA fragments are visualized under UV and gel screening is captured by CCD camera controlled by Bio-vision software.
The ITS amplified taxa (fruiting bodies and mycorrhizae) are sequenced by the company Cogenics (Meylan).
The sequences are compared with sequences deposited in international databases using BLAST procedure on NCBI website www.ncbi.nlm.nih.gov .
Molecular analysis of Alder ectomycorrhizae leads to generate of an inventory at time zero of fungal populations experimental set.

3. RESULTS AND DISCUISSION

Molecular analysis of fruit bodies

18 selected samples on alnicole ectomycorrhizae groups are already well documented in databases (2 *Alnicola* / *Paralnicola*, 2 *Cortinarius*, 4 *Lactarius*, 1 *Russula*, 1 *Paxillus*), as well as certain worthy interesting decomposers found in Alders (1 *Gymnopilus*, 1 *Callistosporium*, 1 *Psilocybe*). It is noteworthy that we got two negative amplifications; therefore, the number of samples which have undergone sequencing is only 16.

• ALNICOLE MYCORHIZIENS

- *Alnicola/Paralnicola*

Sample 1: *Alnicola umbrina* (Fig. 2) "pale": 100% conform to European crops. However we know that ITS does not completely solve the systematic of this complex. Notice that this taxon has been described by (Maire 1928) in the neighborhood of Algiers.

Sample 2: *Paralnicola alnetorum,* it is not about *P. inculta* ss.str. (Mostly known in Europe), but it looks like *P. alnetorum*, which was known only in the Grand-Lemps and the Pyrenees. It means that *P. inculta* has a wider distribution (at least from Estonia to Brittany and Corsica), but *P. alnetorum* is more "Mediterranean". There is a dig on this Algerian refuge and especially for Ain-El-Khiar Alders, which probably was a refuge for *P. alnetorum* while *P. inculta* took refuge elsewhere.

- *Cortinarius:*

Sample 3: *Cortinarius croceocrystallinus* var. *alneti* small cosmopolitan *Myxacium* identical to all crops and European collections.

Sample 4: *Cortinarius sp.*: is as provided in the "blackish mess" of C. *americanus-badiovestitus*, in which we know that ITS will not provide an explanation. However, morphologically, these crops from Ain-El-Khiar Alders are singular; we therefore, expect that the TEF1, LSU or RPB2 gives better results. However, this species has been described in Sardinia, collected at a coastal Alder Cagliari to as *Cortinarius atropusillus* var. alni-*glutinosae* and published by (Contu 1994); So apparently distribution Algeria-Sardinia (TBC). We propose to call this sample: *Cortinarius alni-glutinosae* (Contu) comb.nov (Fig. 3).

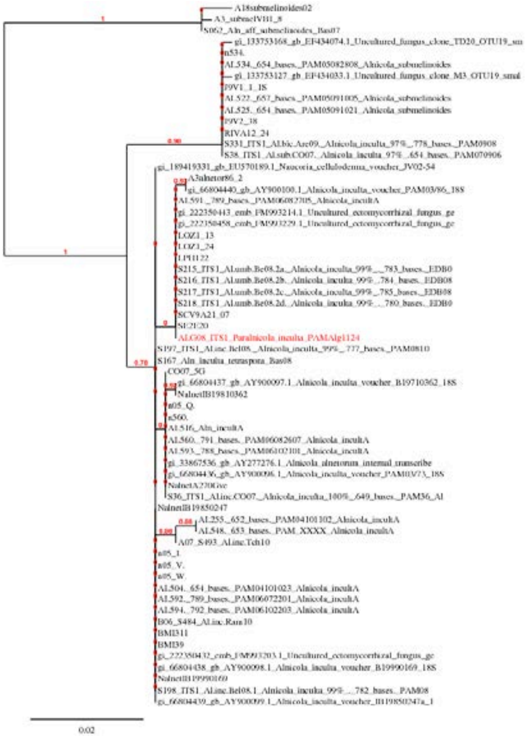

Figure 2: Clade *Alnicola*/*Paralnicola*

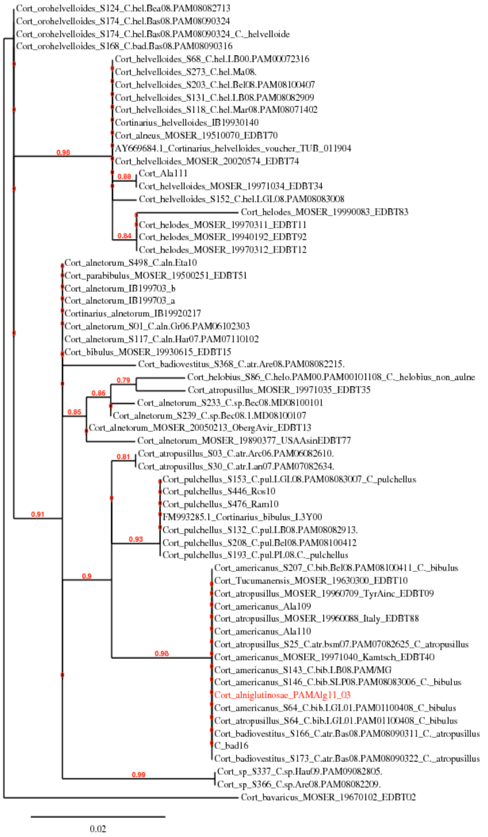

Figure 3: Cladogramme *Cortinarius alni-glutinosae*

- *Lactarius:*

Sample 5: *Lactarius cyathuliformis*
Sample 6: *Lactarius cyathuliformis*
Sample 7: *Lactarius cyathuliformis*

These three sequences match to *Lactarius cyathuliformis* (Fig. 4) (almost indefinite *Lactarius obscuratus* on the ground). It's interesting to find only *Lactarius cyathuliformis* in this refuge, but not L. *obscuratus*! Both species are as frequent as each other, in continental Europe, but they were able to differentiate in allopatric way, before re-colonize Europe.

Sample 8: *Lactarius lilacinus*: unsurprisingly sequence is identical to the European *lilacinus*, despite a slight difference in shape (more slender and lighter).

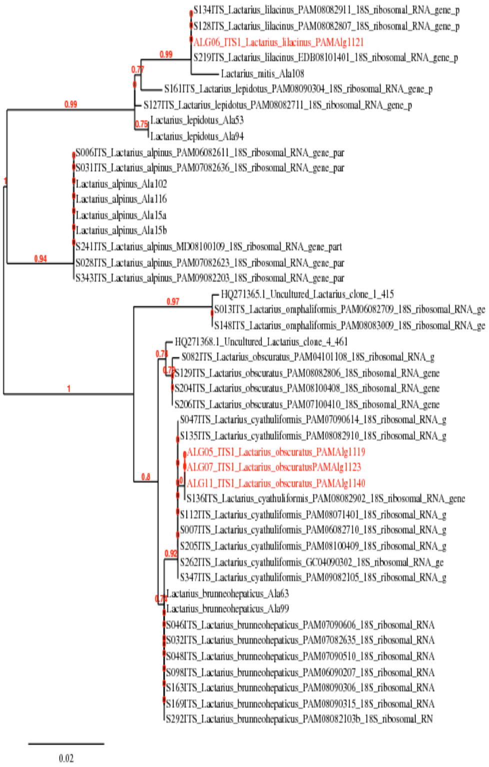

Figure 4: Clade *Lactarius*

- *Paxillus:*

Sample 9: *Paxillus filamentosus*
Sample 10: *Paxillus rubicundulus*

On the ground we have been confused between two species that molecular biology has proved to be distinct, namely *Paxillus rubicundulus* rather southern and *Paxillus filamentosus* to wider distribution. In Corsica there that *Paxillus rubicundulus*; France (Toulouse) both species are found in combination; but in the North, *Paxillus filamentosus* was not harvested. Although not more significantly slender than average, Ain-El-Khiar harvest matches (without biogeographical surprise) to *Paxillus rubicundulus*. We assume that the sample as labeled "sample10", although without satisfactory results, is also *Paxillus rubicundulus* because it was morphology, more "typical" (Fig. 5).

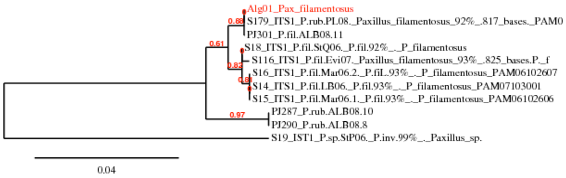

Figure 5: Clade *Paxillus*.

- *Russula*:

Sample 11: *Russula sp.* the only russula found in glutinous Alder that is not *Russula pumila*. This is a *Viridantinae* (the group of *Russula xerampelina*), which is located in a hygrophilous species clade related to willow alpine-arctic zone (*R. chamitae, R. pascua*) or plain (*R. subrubens*). It is morphologically distinct (ribbed margin, low browning and smell...) and the ITS is also a bit different. There was no willow near the place of harvest, we assume that there was a piece of willow "slippage" with Alder , or a species related to sustainable Alder but in any case very localized. It has no relationship to the unknown russula mycorrhizae found in Corsica or in the Alps or with the Alaskan species. This should be a new species to be described (Fig. 6).

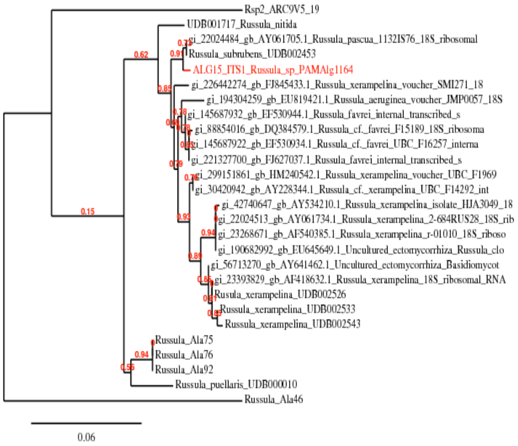

Figure 6: Clade *Russula*, illustrating the species position among the Viridantes group.

• SAPROTROPHES:

- *Gymnopilus*:

Sample 12: *Gymnopilus sp.* (Fig. 7) gymnopile, an apparently common on Alder trunks, and morphologically resembles *Gymnopilus suberis* (Northern African species supposedly subservient to Oak). ITS is identical to a *Gymnopilus suberis* in Genbank, and also some *Gymnopilus luteofolius* determined crops. Notice that *Gymnopilus luteofolius* is a common name given to Mediterranean or tropical gymnopiles in poor condition. It is interesting that this decomposer occurs in Algerian Alders, mainly Ain-El-Khiar ones, not by particular affinity with Alders, but because they are included in its geographical area. This is perhaps a preferential host, as it is quite rare on Oak.

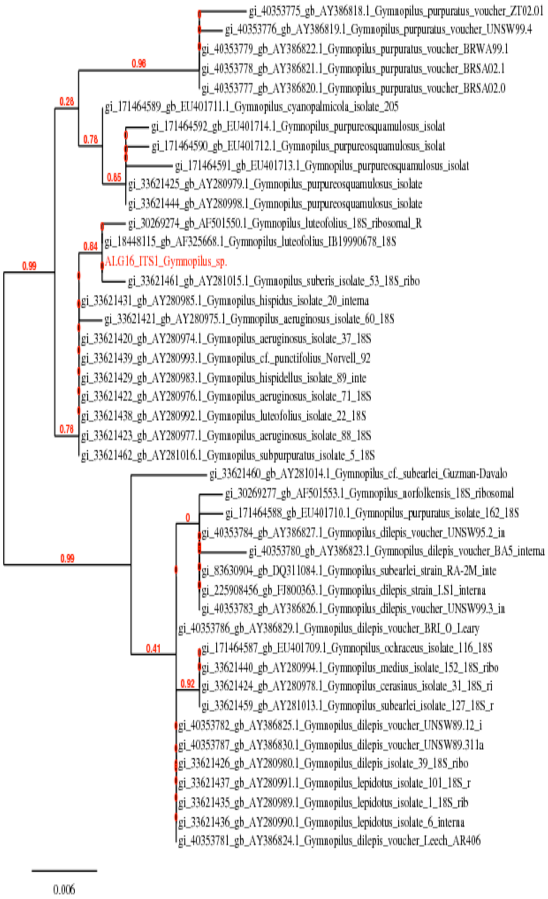

Figure 7: Clade *Gymnopilus* sect. p*urpurati*

- *Callistosporium:*

Sample 13: *Callistosporium sp.* (Fig. 8): ITS does not fully explain the spectacular morphological and microscopic differences compared to *Callistosporium xanthophyllum*. Notice that all *Callostosporium* GenBank have the same ITS, and thaughts are on the fact that this little genus supposedly finds differences elsewhere. In any case the species can be considered to be new, because it largely differs from all described *Callistosporium*.

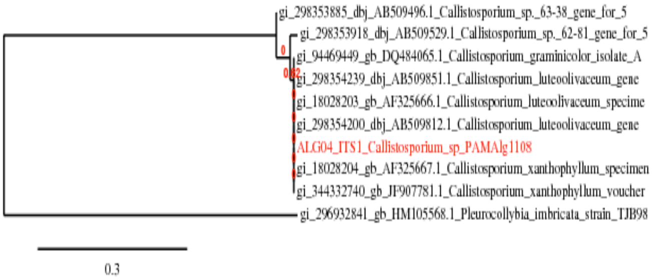

Figure 8: Clade *Callistosporium*

- *Psilocybe:*

Sample 14: *Psilocybe romagnesii*: a species whose name was never validly published, but is fairly common in the peaty or muddy areas, ponds edges etc. The question was whether to classify this species in *Hypholoma* (from macroscopic characters) or the *Psilocybe* (after the coating structure hat devoid of hypodermis). We now compare it with *Hypholoma subericaeum*, which is very similar, to see if it wills to be described. However, there is no STC *Hypholoma subericaeum* Genbank sequence.

Through the results of fruiting bodies molecular analysis, we identified four (04) mycetes; those macroscopic and microscopic descriptions were not fully able to solve the inventory work conducted at the National Park of El Kala (Djelloul 2014):

- Two cortinaries exclusive for the Alders *Cortinarius croceocrystallinus* and *Cortinarius alni-glutinosae*, which correspond to *Cortinarius sp.* and *Cortinarius sp1 in* the list of PNEK fungi, mainly Ain-El-Khiar Alders.
- A *Psilocybe*: *Psilocybe romagnesii*.
- *Callistosporium* gender description.

Thus, of the 16 typed samples, we define 3 new species and one new genus. However, we have not been able to identify two species from russula and gymnopile in the "Genbank" database.

The mycorrhizal group includes complex species growing in mixture, in France. As decomposers, they are rather endemic Mediterranean that find refuge in the woodlands rich in Deadwood, without any underlined specificity. This is an argument to defend these Alders areas, not as closed and exclusively specific islands, but as refugia for a broader and potentially threatened diversity.

Molecular analysis results of mycorhizae

Harvested mycorrhizae were all treated (DNA extraction, amplification ITS1f + 4B or ITS3 + 4B). PCR results were rather disappointing, so that only 76 amplifications / 168 (45.20%) were positive. from these 76 PCR products, only 66 gave correct sequences (Fig. 09), as following:

- 52 could be attributed to known Alnicole species (*Alnicola citrinella*, *Alnicola umbrina, Lactarius cyathuliformis, Lactarius omphaliformis, Paxillus rubicundulus* sensui Orton, *Tomentella*). Tomentellas include *Tomentella* cf *sublilacina*, *Tomentella* aff. *stuposa*, *Tomentella* cf. *elisii.*
- Seven (07) of the sequences have been attributed to *Alnicola*, without species characterization, which is due to their bad quality.
- Five (05) sequences from *Trechisporales* close to each other but different from the one found in Czech republic (Richards & *al.* 2005).
- Two (02) sequences belong to *Ceratobasidium.*

Throughout our results obtained by molecular analysis of ectomycorhizae, we could add 07 new mycetes to our identified species list:

- Three (03) Tomentelles exclusive for Alders, *Tomentella* cf *sublilacina*, *Tomentella* aff *stuposa* et *Tomentella* cf *elisii.*
- One (01) lactarial: *Lactarius cyathuliformis*.
- One (01) paxillus: *Paxillus rubicundulus*.
- *Trechisporales* gender definition.
- *Ceratobasidium* gender definition.

Thus, from the sixty-six (66) samples typed, we have five (05) new species and two new genera.

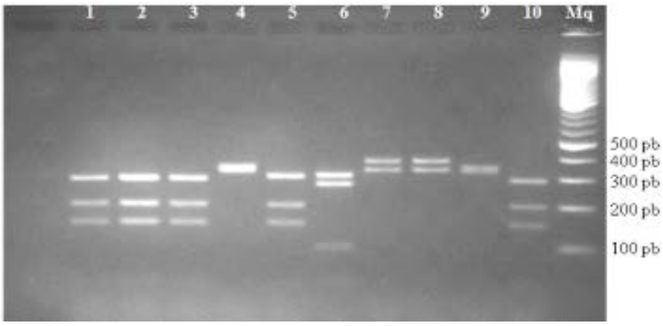

Figure 9: PCR results of ectomycorhizal DNA.

Comparison of fruiting bodies with ectomycorhizal molecular analysis

Molecular analysis of ectomycorrhizae has detected seven (07) taxa that were not identified in the fruiting bodies collection.

From the ten (10) new taxa detected by molecular methods (fruiting bodies and ectompycorhizae) six (06) are not mycorrhizal fungi and 08 are new to the forest of Ain Khiar Alders (not described in (Djelloul 2010). these are saprophytes, the mycelium was probably to be in contact either with mycorrhiza tissues or a dead mycorrhizae.

In general, new species of humid forests are mainly basidiomycetes belonging to the family of *Tomentellaceae* and *Cortinariaceae* (family consisting of many abundant mycorrhizal taxa in the forest ecosystems). Hence, mycological diversity identified in the forest of Ain-el-Khiar numbers 80 Eumycota. The list obtained by molecular technique is very different from that established from mycological campaigns, except some taxa common to both methods of analysis (*Alnicola umbrina, Paxillus filamentosus, Lactarius omphaliformis*) (Richards & *al.* 2005).

The detection of isolates by a single molecular method does not lead to the biological spectrum calculation, because it normally checks if that organizations can achieve symbiosis. Therefore, it does not identify the saprophytic fungi; and even some parasite taxa of this status were identified by this method.

To estimate the actual biological spectrum of the transect, the whole fungal community of the soil should be fully identified: spores, sclerotia, mycelium, different types of mycorrhizae. In other words, saprophytic fungi, parasites, and mycorrhizal have to be identified. This method would need to take samples of a certain volume of soil on the transect and then make determinations and/or molecular analyzes on all the fungal bodies detected in different periods.

By contrast, the molecular analysis method has got the advantage of identifying additional taxa that were not described by the mycological campaigns method, may be because they have not fructified this year, as we did just not observed at the time of the surveys. This method is also being informative and important for the detection of mycorrhizae, evolving naturally with stand age (Horton & Bruns 2001).

4. CONCLUSION

The molecular study conducted over our current work, has helped to set up the fungal community state regarding the common Alders. Although sampling underestimates the ectomycorrhizal fungi diversity (for one year sampling), the highlighted fungal procession brings very interesting information that to conclude requires further study. Indeed, mycorrhizal communities change with stand age (Durieu 1993). In addition, this association is very sensitive to environmental conditions (soil compaction, eutrophication, use of organic and mineral fertilizers, nitrogen) and forest health; in our case Alders forest.

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Paxillus filamentosus

Callistosporium sp

Cortinarius croceocrystallinus* var. *alneti

Lactarius lilacinus

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Full Length Research Paper

Reproductive Biology and Growth of Red Mullet, *Mullus Surmuletus* (Linne, 1758) in Western Algeria Coasts

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ABSTRACT

The biology of red mullet *Mullus surmuletus* was studied from collections taken of the Mostaganem coast (Western Mediterranean) between January and December 2009. Total length ranged from 12 to 25 cm. Females dominated the larger size-classes (> 20 cm). Length frequency distribution according to sex revealed that the females were highly representative in the majority of size classes. The reproductive period activity of the females centers around spring. The total length at 50% maturity for females was 17.5 cm. The length-mass relationship for all individuals can be described by the parameters a =0.009 and b = 2.934. Fish aged 0-8 years were present in the samples. The parameters of the Von Bertalanffy growth equation obtained for females were L_∞= 24.70 cm, k = 0.37 cm / year, and t_0 = - 0.37 year. For males L_∞= 25.52 cm, k = 0.32 cm / year, t_0 = - 0.71 year. Significant differences were found in the growth parameters between males and females.

Keywords: Mullus surmuletus, Mostaganem, reproductive period, relationship, growth

1. INTRODUCTION

Red mullet *Mullus surmuletus* [1] is a demersal marine fish that inhabits sandy and rocky substrata, usually at depths <200 m [2]. It is distributed along the European and African coasts of the Atlantic Ocean, from the English Channel to Dakar, and around the Canary Islands. It is also widely distributed in the Mediterranean and Black seas [3, 4].

Mullus surmuletus biology has not been extensively studied, and but few papers deal exclusively with this species. [5] studied its spawning and larval development in captivity, while [6] N'Da (1992) and [7] studied its diet and sexual cycle on the Brittany coast, France.

In the Mediterranean, most investigators have studied *Mullus surmuletus* jointly with *M. barbatus,* and reports are available comparing chemical composition [8], age and growth [9,10,11,12], reproduction [13], trophic relationships [14,15], and biological and fishing aspects [16,17] of both species.

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Only [18] and [19] have studied some biological aspects of this specie in Algeria.

The present study is an extension of her work, reproductive and analysing the age, growth aspects of *M. surmutetus* in Mostaganem (Northwest Algeria).

2. MATERIALS AND METHODS

A- Reproduction study

Length frequency data (*n* =838) were obtained from red mullet collected fortnightly between January and December 2009 from small-scale fleets working from Mostaganem coast (Fig. 1). A subsample was taken from each sample for biological examination (*n* = 838). Total length (*TL*) was measured to the nearest millimetre and total body mass (*WT*) was recorded to the nearest 0.01 g. Sex and stage of maturity were then determined macroscopically and gonad mass (*GM*) was taken to the nearest 0.01 g. The stages of maturation were classified as follows: I, immature; II, resting; III, ripe; IV, ripe and running; V, spent.

The sex ratio was analysed by size-class. The spawning season was determined by following the monthly evolution of the gonadosomatic index (*GSI*), according to [20]: *GSI* = 100 GM / *WT*.

To monitor morphological variations, the condition index was calculated to assess the degree of overweight consecutive to genital development and repletion state of the target species. Condition factor was studied in females in order to show differences of Kn [21] related to time, according to the formula: $Kn = W_T/W_{th}$ with $W_{th} = a\, L_T^b$ where "W_T" is the total weight, "W_{th}" is the theoretical weight, "a" and "b" are coefficients of the relative growth between weight and length and "L_T" is total length.

For estimation of the length at sexual maturity (length at 50% maturity), a logistic function was fitted to the proportion of mature individuals (Stages III, IV and V) by size-class, using a non-linear regression [22], $P = 1 / \{1 + \exp [-b*(L-Lm_{50})]$.

Where, (*P*) is the proportion of mature individuals at length (*LT*), a and *b* is a parameter determining the slope of the maturity curve and *Lm50* is the total length at which 50% of the fish are mature. The relationship between *TL* and *WT* was established by linear regression [23], both for males and females separately and for the whole population.

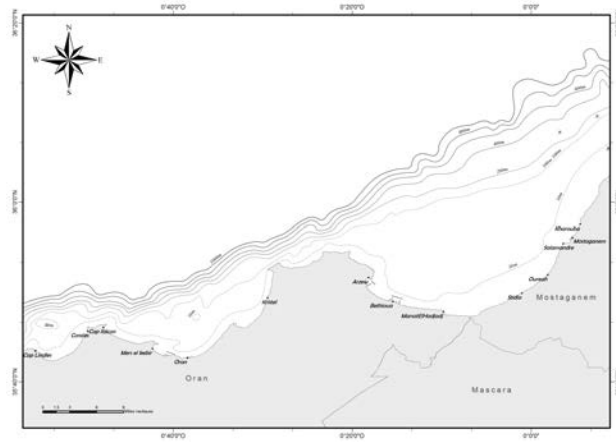

Figure 1: Study area (Northwest Algeria)

B- Growth study

The values of growth parameters were calculated using the software FISAT II (subroutine ELEFAN) [24]. Tables 3 report values of L_∞ (asymptotic length), k (coefficient of growth), t_o (the theoretical age at which the size is zero), also for Ø (growth index). These values, once estimated for *M. surmuletus* specimens, were then replaced in the equation of Von Bertalanffy. Parameters obtained from the equation of Von Bertalanffy did not differ significantly between the two sexes; but asymptotic length, growth rate and growth index resulted slightly different in males. Length frequency data were converted to age frequencies using the estimated Von Bertalanffy growth parameters [25, 26].

Biometric relations observed by analysis of relative growth are shown in Table 2.

This relationship indicates an upper bound of allometry (b greater than 3) for females in all months of the year. We can say that the weight of the species grows faster than the cube of length. Such an allometric relationship was observed also in males. In fact, the lower bound also appeared in the allometry of males. The fitting of a and b ($W_{th} = aL^b$) was employed as input data in stock assessment models.

3. RESULTS AND DISCUISSION

A- Reproduction

1. Size distribution

The total length of red mullet collected during the sampling period ranged between 12 and 24 cm. With reference to the distribution of males and females in the *Mullus surmuletus* samples, the females predominate in all months (Fig. 2). The overall sex-ratio value estimated as 61.57% in favour to females. Further, females were dominant in all size classes (Fig. 3). Results were compared with theoretical □ (1.96) at a rate of 95% confidence (Table 1). The calculated value of □ = 1.62 is less than the value (1.96) given by the table of the z-score; this finding indicates that females are, on average, significantly larger than males.

Table 1: Percentage of sexes in *Mullus surmuletus* (*p<0,05)

Sexe	Total	Percentage
Females	516	*61.57 ± 3.29
Males	322	38.42 ± 3.29
Total	838	100

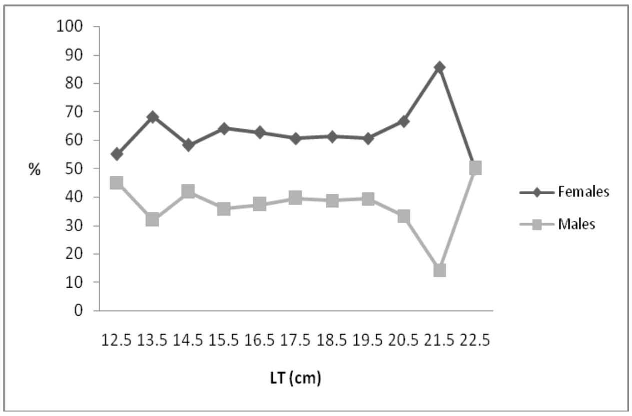

Figure 2: Mean monthly length frequency distribution of *M. Surmuletus*

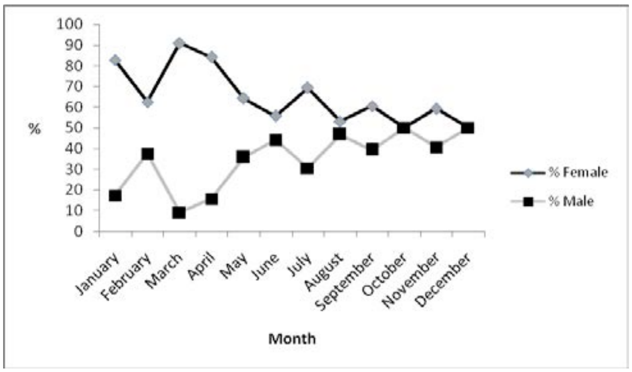

Figure 3: Monthly sex ratios by length-class of *M. Surmuletus*

2. Sexual cycle and spawning period

The gonado-somatic index (GSI) was used to determine the reproductive period, which was calculated from samples taken monthly from males and females. The maximum GSI value was 2.98 in females in May. In June, the GSI value decreased because all samples had presumably dispensed of their eggs (Fig. 4):

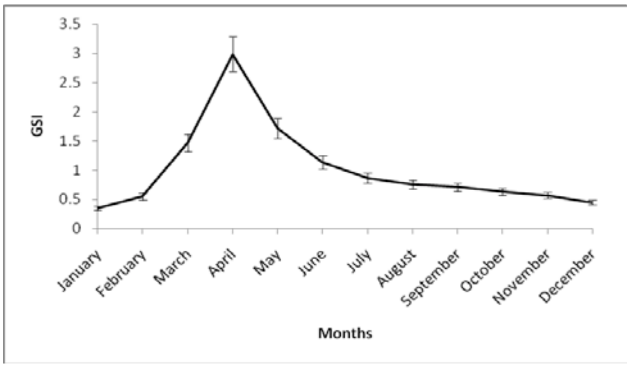

Figure 4: Monthly changes in the gonadosomatic index (GSI) with standard errors of *Mullus surmuletus*

After July, the gonads began to develop and the values of GSI again started to gradually increase until February. Our findings suggest that the reproductive period of this species occurs regularly between March and June.

As regards the sexual maturation of females, different stages of maturation of the gonads during different months of the year are shown in Figure 5:

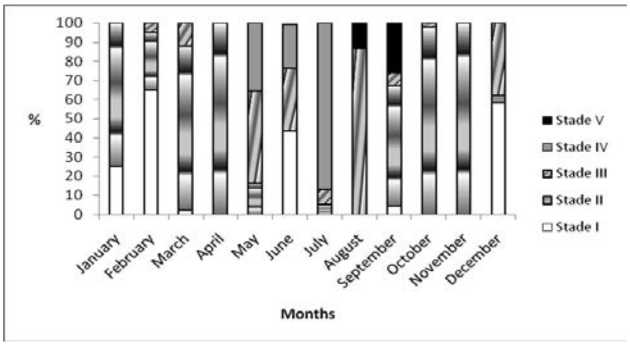

Figure 5: Percentages of different stages of sexual maturity in *Mullus surmuletus* females per month

Figure 6 shows the condition factor Kn by seasons in females sex. The values of Kn resulted overweight, thus revealing breeding events and confirming a rapid maturation occurring from March to May.

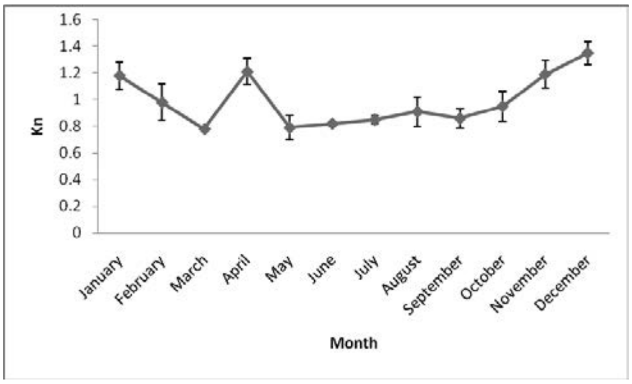

Figure 6: Condition index (Kn) with standard error according to the season in *Mullus surmuletus* females

3. Size at First Sexual Maturity

The smallest mature female observed during the present study was 12.3 cm *TL*, whereas the smallest mature male was 12 cm *TL*. The estimated mean size at which 50% of females were mature was 17.70 cm (Fig. 7):

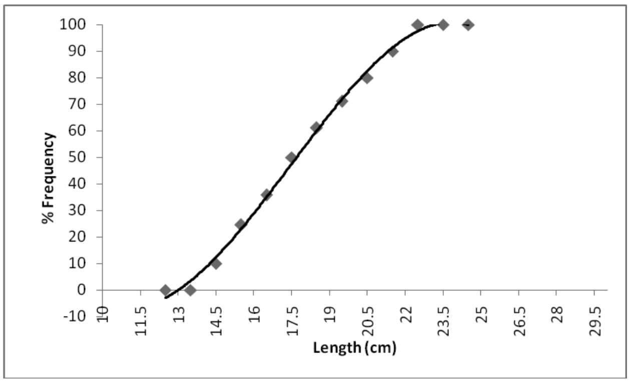

Figure 7: Size at first sexual maturity of *Mullus surmuletus* (females)

B- Growth

1. Length-Weight Relationship

Of 838 specimens captured, 516 were female and 322 were male. Females measured 12 to 24 cm *TL* (X=*18.21* cm *TL*), males 12.5 to 23.5 cm *TL* (X =*17.69* cm *TL*). The length-weight relationship of *Mullus surmuletus* indicated a positive allometry for female and a negative allometry for male by the following equation:

($W_T = a\ L_T\ ^b$). The analysis by sex showed a significant difference in the *b* coefficient (Table 2):

Table 2: Biometric Relations *M.surmuletus* (Linne, 1758)

$W_T = a\ L_T\ ^b$	
Females	$W_\infty = 0{,}009L_\infty^{3{,}02}$
Males	$W_\infty = 0{,}010L_\infty^{2{,}98}$

The parameters of the Von Bertalanffy growth equation determined for males and females are shown in Table 3. Significant differences were found between the growth of males and females.

Table 3: Growth parameters for *M.surmuletus* females and males

Sexe	**Females**				**Males**			
Parameters	k (cm/yr)	L_∞ (cm)	t_0 (yr)	Ø	k (cm/yr)	L_∞ (cm)	t_0 (yr)	Ø
Results	0,37	24,70	- 0,37	2.35	0,32	25,52	- 0,71	2.32

Table 4: Von Bertalanffy Equation

Sex	**Von Bertalanffy Equation**
Females	$L_t = 24{,}70(1-e^{-0{,}37\ (t+0{,}37)})$
Male	$L_t = 25{,}52(1-e^{-0{,}32\ (t+0{,}71)})$

Table 5: *Mullus surmuletus.* Length weight and growth parameters in different areas of Mediterranean Sea (F females; M males; F + M females and males; further abbreviations as in Tables 2 and 3)

Sex	**L_∞ (cm)**	**k(cm/year)**	**t_0 (year)**	**Ø**	**a**	**b**	**Area**	**Source**
F+M	32.52	0.1097	-3.64	2.06	0.0073	3.10	Catalonia	Sáncez *et al.* (1983)
F	29.75	0.49	-0.31				Sicilian Channel	Andaloro and Giarritta (1985)
M	26.25	0.41	-0.23					
F	21.82	0.51	-0.112	2.38	0.1403	3.351	Tunisia	Gharbi and Ktari (1981a)
M	19.87	0.49	-0.025	2.28	0.1443	3.28		
F+M	21.51	0.50	-0.116	2.36				
F	31.90	0.20	-2.60	2.32	0.0095	3.1090	Majorca	Renones (1995)
M	25.54	0.27	-2.45	2.25	0.0104	3.0672		
F+M	31.28	0.21	-2.34	2.31	0.0091	3.1203		
F	24.70	0.37	-0.37	2.35	0.009	3.02	Algeria	Kherraz *et al.* (2014)
M	25.52	0.32	-0.71	2.32	0.010	2.98		

4. DISCUSSION

Mullus surmuletus is distributed along the continental shelf and slope down to a depth of > 400 m [27]. In Mostaganem waters, the highest concentration of this species is found between 15 and 60 m depth. Below this depth, the species is replaced by the other mullid species *(M. barbatus)* present in the area. The same features have been observed by [28] for red mullet in Tunisian and Majorcan waters, where they are found at depths between 30 and 90 m and more than 90% of the fish are 0-4 years old.

In the depth strata where the Mostaganem trawling fleet exploits *Mullus surmuletus,* the more frequent lengths in the catches are between 12 and 25 cm. In the age-length relationships these correspond mainly to specimens between 0 and 4 years of age. The results are similar to those obtained by [10] in Tunisian waters. These authors found that between depths of 30 to 90 m, 90% of the individuals were between 0 and 4 years of age.

The proportionately larger red mullet were caught between February and May. These seasonal differences in the length distribution of the catches may be explained by a concentration of adults due to reproduction in spring, whereas at the end of summer and autumn the recruits resulting from the annual spawning enter the fishery. [10] Also indicated a migration towards shallow waters (from 15 to 60 m in depth) by mature adults in spring and summer, and a concentration of summer and autumn. Recruitment to the bottom takes place in shallow areas, with a displacement towards deeper waters as mullet size increases.

The monthly changes observed in the GSI and the percentage of mature specimens recorded are very similar to results obtained in other areas of the Mediterranean [13,17] and in the Atlantic [7], where this species has also been studied on a microscopic scale. The reproductive activity of females centres around spring.

Red mullet attain sexual maturity during their second year of life, at around 17.70 cm. Similarly; in the Mediterranean they attain sexual maturity between the first and the second years of life [29, 30, 17, 31, and 32].

We observed the presence of gravid females with a maximum of 1.60 RGS in April also, there are resting females in spring and summer; these observations could be explained by the fact that after spawning adult females would regain deep waters. Our results are almost similar to those obtained by other authors. They all define clearly the spawning period in spring; this situation is common to the complete the Mediterranean coast [33] and in the Ionian Sea [34].

The results of the study of the condition index (Kn) in females, set and confirm the spawning period in the range from March to May, the value of Kn begins to decrease with a minimum in May, which could be explained by a loss of organic matter associated with the laying period.

The positive allometry of the length weight relation-ship for the whole population agrees with results of other studies (Table 5). The differences between females and males, with a larger allometric coefficient in females than in males, are probably due to the different length distributions of the two sexes. In the size weight relationship, this difference between females and males as a whole means that the portion of the population > 21 cm in length has a very low proportion of males (Fig. 2).

As a whole, growth of *Mullus surmuletus* is fast, with females growing at a slightly slower rate than males. There is no apparent difference in the maximum age between sexes, but females are predominant in Age Classes IV and V. The growth of *Mullus surmuletus* recorded in our study is very similar to that reported for this species in other areas, except in Catalonia where it is lower (Table 5). However, the calculated growth parameters describe the exploited population for the trawl fishery, where the oldest fish were 7 yr of age.

Finally, our results suggest a life cycle for *Mullus surmuletus* similar to that proposed for *M. barbatus* [10, 13], the other mullid species present in the study area. These two species also display a high dietary overlap [14, 15]. However, two mechanisms enable the coexistence of both species in the same area. First, spawning and the recruitment of both species are temporally separated. *M. surmuletus* begins reproduction in March, with recruitment to the bottom from August onwards, whereas *M. barbatus* reproduces from April to July and recruits to the bottom in September-October. Moreover, differences in their bathymetrical distribution allow the coexistence of different length ranges of each species, which probably enables the partitioning of food resources.

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Emotions - various

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Early Tears

It's the very beginning of my day
And here starts the confession that I say
I hear the newest screams out there
Nothing surrounding me seems fair
Suddenly I felt my wetted cheeks
My cold shiver gives me the creeps
As if thrown in a world of terror
To learn the experience of a warrior
I feel like a deadly task waiting
For me to wade through and declare my winning
Feels too risky to make it out of bed
Since there's no shield and no trees to shed
This frightening moment that could break my fears
And wipe away every drop of my tears

July 12, 2002

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Double palm – Twin tears

There really is a day
When the sun shines
And sparkles its ray
Displaying the colored vines
Those days I had heard
All the promising calls
Blowing through my yard
Waking the saddened flowers
To send me the lovely scent
Filled with graceful spirit
So I shall not regret
The scars of my recruit
There is also time
When the mountains swallow
The circle of fire
Viewing the next extraordinary art
That shapes the eyes and hearts
Of mankind as it is
Best out of bests
Worst out of worse
And of the dreamers and divers
Into million pictures and thoughts
Among those I am the one
Sinking like best divers
Blind to losing but to win
Tonight I see both on my palm
To score and choose the one
But my hands become wrinkled
For days have shattered my vision
Only to see the signs and sins
Of this worthless world
And evenings showed me pictures
Of multi level dreams ... confusions
Success whispering its tune
And failure daring to scream
I weakened my judgment
Giving way to tears
Suddenly I saw twin drops on each palm

July 2003

Everlasting Mirage

I began my day with a feeling
Trying to experience what happiness really is
I stared up at the wide-open sky
With the clear blue beauty
I stared hard to see a picture
…. I couldn't
I tried an imaginary art
And I still couldn't find any
I begged the universe a favor
But like a negative response
A heavy cloud covered the beauty
Each drop of rain washed my body
To make me understand the impossibility
Of feeling this pure joy in this cruel world.

January 4, 2003

Fantasy Graveyard

Wish I could know what it is
The point that gives me the bliss
But how could I solve this mystery
When I am still trapped in a graveyard of fantasy
Reminiscing the jinks of my never ending history
I still feel more scared
When I am still embraced
I know I can score
And make it to the final door
But it seems I lose the game
Before I even start to play
I no more need to be led astray
Even though I can never experience perfection
How could I fail for a better situation
I have got to defeat my soul of depression
So there has got to be someone to spare me an inspiring dedication

February 25, 2002

Friction breath

What am I breathing?
My nostrils are so nervous
I am certain for it is not
The usual atmosphere pumping the heart
But a friction of yes and no
Of enlightenment that scares me
Whether to accept or reject the choices
To pull back those memories
That I have certainly missed
Or to let go and move on
So I could be only today
And set my welcome for tomorrow

October 31, 2004

Golden Meaning

How will I know
If guilt has poured into my veins
For I am just human
Claiming my innocence through actions
Grief has washed my words
And spilled the golden drops
Into grounds and roots of this earth
So no sense will hear it sink
Or no splash will make anyone blink
… how fine that I have found
Pleasure out of voiceless whispers
That vibrates through human spirits
Breathing life into stillness
But how strange they haven’t yet figured
The true treasure of my silence

February 6, 2004

Individual Power

I am blocked with a cemented wall
Imprisoned in a ninety meter high wall
Surrounded by a nine meter diameter floor
Everyone pretend they hear not when I call
But my voice echoes everywhere
No one reaches out when I fall
Friends I thought cared before
Pretend they see not when I suffer
How could they try to bury my body and soul
When I am still breathing trying to survive
I will no more raise hand for any help
My enthusiasm is enough to start my first safe step
I will break this ultimate wall and free myself
If only I could struggle on my own

January 1, 2002

Lucky day or not

Every one is gone
And here I am left alone
Wondering where I belong
Because it’s been so long
Since I stepped into my home
Now is the newest dawn
And the birds singing their song
Never came to raise their tone
My back hurts resting on this quoin
And I can feel my heart pound
Still I am out here in the cold
Hearing nothing but my trembling bone
Is this a day that is wrong
Or my world newly born?

July 7, 2002

Me or them

I am slain with a sword
A sword dipped in blood
Of those punished as sinners
I know well of the countless sins
That I am doing blindly but unwillingly
And I confess that had I had
A second life after the first death
I should be slain again
With more fierce and sharp sword
But among my silence and confession
There lies a whisper
Revealing that I know not yet
Whether I deserve the punishment
Or whether the vultures
Feeding on my live body
Deserve more of this punishment

March 27, 2005

No more real meaning

Like it was centuries ago
I drained my blood bleeding all over
I can't understand which part it is
Among the chains that keeps me living
For my tears are still dropping
And feelings are still hurting
The left parts that marked the word
Or proved me as a self
I still hear the whispers
That judged me guilty
Proving wrong through blinded senses
To shelter me under the hopeless wings
And yet some build my innocence
Through words that melt and disappear
In the palms of strangers
And so I chose my silence
To play deaf when I could still hear
Blind when I could still see
And numb when I could still feel
… yet again they have translated this
As negative as yesterday
And judged me ever more guilty

February 12, 2004

No way out

I pictured myself in an island
Where no man dares to disturb my mind
I looked around to see an angel’s wing
And engage myself with a graceful ring
To scrape the flowing thoughts of the world
I started to erase each picture and word
Which tired me out suddenly
I filled myself with energy
And restarted with a hopeful soul
But then I thought I heard a call
That made me anxious of knowing its place
I tied my heart with a diamond lace
To free myself from doubt and fear
I walked straight holding my spear
High above the river I saw images
And screamed out for it were memories of my past ages
I understood I was shaping it out of my head
Thinking I was leaving it behind
I dropped hard on the ground
Dipping my face into my palm
Knowing there’s nothing or no one to calm
My trembling and paralyzing body
I cried and cried hopelessly
For I was assured and reminded
That there’s no way of clearing the thoughts already printed

June 13, 2003

Offer me old century

I cry tears of longing
For the old centuries
Where I could smile truly
And feel love that invades my body
All those true sentiments
Have instantly disappeared
And left me longing and searching
Shouldn’t wings grow in my soul
Spirits lift me with mending palanquin
And fly me destinations back?
Am I not worth to be offered that?
Or should I sacrifice more of me?

July 26, 2008

Quiet cry

The whispers in this silence
Voices the beginning of my sadness
My senses unite to search the question
Of my own unique dimension
Every human being seems just a picture
Playing unwanted part beyond the true nature
I question each waving breath
To offer me the last strength
So I could reach the end of skies
And break these human articulated lies

June 13, 2003

Silent but soundful

I came early to school
Led my legs to the classroom
Where chairs, tables and a black board
Were attending their usual quiet conference
Seems like i have disturbed
When I walked in and pulled a chair
As usual I rubbed the dust
For they always expected someone to do so
As they never have time to clean
I tried to understand the silence
By making myself as quiet as possible
But before a second has ticked
I heard my heart beat
Making noise of a quick drum
But has it ended with only this?
Yet other sounds started to hit my ears
The whoosh of my inhaling and exhaling
Blood running in my veins
And blinks of my eyes
All came up with a perfect melody
That has collided with the previous silence
So I scored myself zero
For a perfect silence never belongs to me.

October 26, 2004

Soothing Death

I felt a calm breeze
Under a palm tree
Lifting me up
Through the moonlight clap
But voices strike
Like a blade of knife
Making me sip
When I couldn't find my lip
And I swallowed
Feeling not the hollow
Or touch of the liquid
While imagination was still vivid
But the poison
One that was tasteless
Has left me lifeless

2003

Triple tears

I know nothing of my extra tears
But ask me thousands about my triple tears
For I drop the first tears
To the birth that is the beginning of the worst
The next tears to my living
And the last to my death
That drowns me into judgement sits

August 13, 2004

Still nil

Sobbing was I when I woke up yesterday
Just another day is this month of May
With all the faults and sins I shoulder
Not even a second to ponder
Glaring in front of my eyes in series
Did I not know I had the keys
Woe to me for I will lie and sin again
If only I say I knew not the solution to this pain
The avalanche of signs in my conscious
Redundantly revealed during my unconsciousness
Has all stroke a panic to my tricks
Tricks that supposedly built strong bricks
Which I thought would let me hide from being judged
For all the wrong I did to the pledge
My bones and sinew nearly detached
With the nightmare that snatched
My throbbing heart out of my body
O! how my eyes bulged with body paralyzed and thoughts plenty
If only I lived longer I would apply the goods deeds
Ow my Lord just one chance so I will heed
All your words and repent past dos
Let my breath recite your words before I doss down
O just a glimpse of the next dawn
… And so I woke with the morning sunshine
Washing my face and fulfilling my pine
Time elapsed and washed away my panic
Carving me to my state of hectic
But Alas!!! Time as well swept away my agility
And here I am again the distorted me

May 8, 2008

Truth Behind Reality

I feel like I am the only
Drowning in the nights of evils
Empty smiles cover the ashes
Of the burnt flesh of my body
Every move is all a beam of image
Present in the lens but the film
Like the wild fire of the forests
It leads part of me for a deadly rest
And drops of tears from my burning eyes
Becomes another fuel for the outrageous fire

March, 2003

Until I collide

I might not see tonight
I might not hear the waves
Or even feel the touch of his creation
Each moment I bow humbly
For his grace beyond explanation
For he has blessed me with all
I say not I have missed any
Only my understanding is one that is absent
It is I who play blind with my sight
Deaf when every sound waves hits
And pretending numb when I am complete
I bow till my spine detaches
Cry till my tears dry out
And beg his forgiveness
Till I inhale not or exhale not
Until I collide with the soil I came from

May 8, 2008