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ABSTRACT BOOK

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SEQUENCING AND PRELIMINARY ANALYSIS OF GENES INVOLVED IN IRON METABOLISM IN *CANDIDA AFRICANA* CBS11016 STRAIN

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In this study we report a molecular characterization including differential gene expression analysis of the transcription factor (AFT2) and other genes involved in the uptake (FTR1) and oxidation (FET3, FET31, FET33 FET34, FET99) of iron in *C. africana*, a less pathogenic biovariant of the well-known human pathogen *C. albicans*. The type strain *C. africana* CBS11016 and the *C. albicans* WO-1 strain were used for specific phenotypic and genetic analysis. For phenotypic tests, the strains were grown on YPD agar containing different concentrations (80, 150, 200 and 500 µM) of bathophenanthrolinedisulfonate (BPS). From each strain, DNA and total RNA were extracted according to standard protocols and used for sequencing and qPCR analysis of the genes listed above. The results revealed that CBS11016 and WO-1 strains were able to grow on YPD+80 µM BPS, but at higher concentrations *C. africana* showed a reduced growth and a hyperfilamentous phenotype if compared to *C. albicans*. DNA sequence analysis showed a number of characteristic nucleotide substitutions in all examined genes. Moreover, FET34 and AFT2 genes showed also a specific deletion of three and six nucleotides respectively. No transcriptional differences were observed among the two *Candida* strains examined. Only the FET99 gene was significantly down-regulated in the CBS11016 strain. Unlike *C. albicans*, *C. africana* shows a retarded growth when cultured in iron deficient conditions and this appears not be exclusively linked to genes involved in the iron metabolism. Therefore further analysis are needed to elucidate the molecular network related to iron utilization in *C. africana*.

CLIMATE CHANGE AND FOOD SAFETY: CITIZEN SCIENCE FOR MONITORING THE PRESENCE OF TOXIC ALIEN FISH SPECIES IN ITALIAN WATERS

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Global warming is transforming the Mediterranean Sea as a result of the increase of the sea water temperature. Exotic tropical species, originating from the Indo-Pacific area and entering via the Suez Canal ("Lessepsian" migration) are spreading (tropicalization). Some of these "alien" species,

such as those belonging to the family Tetraodontidae, or "puffer fish", are toxic, as they are able to accumulate a potentially lethal neurotoxin. According to the available reports, 3 species of puffer fish are now present in Italian waters: *Lagocephalus sceleratus*, *Lagocephalus lagocephalus* and *Sphoeroides pachygaster*. The project "Climate change and food safety: molecular, microbiological and toxicological analysis on toxic fish species in the Tyrrhenian Sea" led by the Istituto Zooprofilattico Sperimentale of Lazio and Tuscany in partnership with FishLab, Department of Veterinary Sciences, University of Pisa and the Veterinary Services and Animal Health, Ministry of Agriculture & Rural Development, Israel, is funded by the Ministry of Health. It aims to monitor the occurrence of toxic fish species along the Tyrrhenian Sea coast and to characterize them under a molecular, microbiological and toxicological profile. The first part of the project was dedicated to dissemination activities using dedicated informational brochures and posters, a report form, a Facebook page and a specific section on the FishLab site, in addition to newspaper articles, TV interviews and meetings with fishermen, divers and control authorities. All these activities were aimed at creating a network for the collection of reports and samples, to update the presence and toxicity of these species, allowing a better assessment of the associated risk.

VARIATION OF TEMPERATURE IN A COASTAL PROTECTED AREA (GANZIRRI LAGOON, ME) DURING THE LAST HALF CENTURY: GLOBAL WARMING?

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Brackish waters are highly productive ecosystems, in which more than 90% of the world's marine and freshwater biodiversity is present. These environments such as lagoons, bays, estuaries, coastal lakes and ponds are subject to high fluctuations of chemical, physical and trophic composition. Lagoons, particularly, are highly productive coastal environments that provide many important features to local communities and natural conservation, such as: species protection, reproduction, nursery zones and many others. The Ganzirri lagoon, formed between 3000 and 2500 BC, is located at sea level. It is divided in two zones: SW and NE, which differ principally for their bathymetry, morphology of the bottom, and physico-chemical characteristics of the waters. This lagoon is a transitional environment presenting shallow waters (maximum depth=6.5m, average depth=1m), and slow water circulation. It is a marine formation but receives the input of fresh water from numerous sources. It is connected to the Ionian Sea and to the Faro Lake by channels. Beside from these exchanges with the sea, the variation of temperature depends mainly on the atmospheric conditions. This study comprehends both literature's collection of temperature data, and a year of *in situ* measurements. In this research we compared the temperatures of the 1953 with other two periods (1979-1999 and 2000-2016). The collected data, showed a clear increase of temperature during the winter months since the early 50's, by 3°C up to 1999 and about 4°C in the last two decades. This increase of temperature could be linked to the global warming, which has been taking place in our country in the last half century.