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colostrum in the first h was characterized by a high content of dry matter, protein and lysozyme and a high antioxidant activity. Its intake in the first 48 h of life guarantees the survival of the foal. In contrast, the foal's life is endangered if it does not absorb colostrum in the required quantity or quality, e.g. if it is abandoned by its mother or orphaned. For these reasons, the study was carried out in collaboration with the Territorial Biodiversity Office, which manages the Eastern Murge Biogenetic Nature Reserve, which has become a 'public colostrum bank' for national farms and all horse breeders.

P258

Whole genome sequencing data provide a landscape picture of genetic variability in sea cucumber species

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Holothuria or sea cucumber is a genus of marine invertebrates, belonging to the group Echinodermata, commonly called sea cucumbers. Holothuria species are detritivores, raking sand into their mouth with oral tentacles, extracting and digesting the bacteria, animal and vegetal particles, and voiding the sand through the anus. In this way they churn up significant areas of the seabed, playing a central role in the habitat these species live. Holothuria species have been seen as a promising candidate for aquaculture, as they are resistant to handling and adapt easily to captivity conditions. The interest in Holothuria for aquaculture began in Asia and reached the European market, making it a potentially valuable species for European aquaculture. The genus counts more than 160 species, many of which are uncharacterised at the genome level. However, very recently, few genome drafts became available, allowing to conduct genomic analyses on these species.

Here, we provide a first comparative genome analysis of two species of sea cucumber that are common along Italian shores, *Holothuria polii* (HP) and *Holothuria tubulosa* (HT) utilizing the reference genome of *Holothuria glaberrima* (HG) in the comparison, the only reference genome so far available. The reference genome is composed of 89,105 scaffolds, most of them (54,676)

with scaffolds below 10 kbp in size. Scaffolds over 10 kbp represent 1.067 Gb of the predicted 1.1 Gb. We produced whole genome sequencing datasets using Illumina paired-end read for a few HP and HT samples. About 300 million reads per sample were filtered and then mapped to the HG reference genome with standard options. Variant calling was performed considering all samples together. The genome coverage from the datasets of HP and HT was 56% and 58%, respectively. This relatively low coverage is probably linked to the drafted genome assembly for HG, which is highly fragmented. Variant calling produced 72,217,418 single nucleotide polymorphisms (SNPs), mostly on the longer scaffolds that will constitute the core of the analyses. This information has been used to estimate the genetic relationship among the three species and detect genomic regions of high genetic divergence that might be useful to define specific genome regions that characterize different Holothuria species.

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Use of biopromotor to improving depleted coastal and semi-closed marine areas

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The progressive pauperisation of the marine fauna is also testified by the results of fishing obtained along the Ionian coast that indicate a progressive decrease in the quantity and marine species fished. The local economy is heavily penalized by the low yield of fishing caused by problems related to environmental pollution and water heating. Use of bioactivator, mixtures of selected microorganisms, enzymes, plant extracts and mineral catalysts that, once released along the coastal areas, can activate and improve the quality of marine ecosystem.

For the trial in an area close to the mouth of the river Cavone (Pisticci, MT) 2 sites of equal surface area and comparable as by kilograms of fish caught as by number of species fished were identified (C – Control and T – Treated). On site T were weekly released 2 bioactivator (MICROPAN OXYLESS and MICROPAN AQUA PE). During the treatment, in each site, were performed a caught monthly (T0; T1; T2 and T3); on the boat the specimen fished was identified and numerated, individually weighed and delivered to the laboratory in refrigerated conditions (4 °C).

Hence, the following measurements were made: total, fork and head length and maximum height. From linear and weight measurements, morphometric indexes, as relative profile, cranial index and condition factor were calculated. Rheological properties of the raw fish fillets were assessed using an Instron 5544 Universal Testing Machine. Texture Profile Analysis (TPA) was performed using a flat steel probe of 25 mm diameter, through a double compression test elaborated by the incorporated software. AOAC procedures were used to assess the moisture, ether extract, raw protein and the ash.

The results of comparison between T0 and T1 do not indicate significant differences in the parameters considered; at T2 the results indicate an amount of 8,1 times greater in site T then the site C and relative to the number of species have been counted 11 more in area T compared to the C. In T1 and T2, samples analysed have significant differences in total length, relative profile and condition factor for grey mullet (*mugil cephalus*), and striped seabream (*Lithognathus mormyrus*). No significant differences are notable in colour and textural parameters in fishes analysed.

Our study indicates that the bioactivators were effective in the increasing of number of species caught and the quantity fished for each.

P515

Tetrodotoxin presence in mussels: rapid toxin detection based on a Point of Care immunoassay

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With the ongoing climate changes and increasing globalization, alien species have colonized new ecosystems. Recently, in the Mediterranean Sea an increased number of cases of tetrodotoxin (TTX)-contaminated seafood have been reported, resulting in a serious case of food poisoning. Due to this increase in cases, EFSA (European Food Safety Authority) has set a limit to TTX concentration in seafood, which can't be higher than 44 µg/kg. The available methods for TTX detection in seafood require a specialised laboratory, expensive instrumentation, trained staff to conduct the analysis and require a couple of days to obtain the results. Thus, having a suitable method for TTX detection for the infield controls would be highly desirable. To develop a Point of Care (POC) system, we first optimized an Antigen-Antibody enzymatic immunoassay (ELISA) aiming to verify both specificity and antibodies' performance selected on the target

toxin. With the purpose of optimisation, TTX detection was performed on laboratory spiked samples of mussels and the extraction approach, and the mussel matrix effect were both investigated. Subsequently, the optimised immunoassay protocol was transposed to an Organic Light Emitting Diode (OLED)-based immunosensor to allow the POC analysis directly in the infield. The developed immunosensor has been tested with the spiked samples obtained experimentally in the laboratory, as previously with the ELISA assay. In the POC protocol no enzymatic amplification step was performed like in ELISA, but it was detected the fluorescence emission produced from the marked secondary antibodies.

The data obtained from the fluorescence intensity allowed good discrimination of the positive and negative samples in relation to the limit set up by the EFSA. The results obtained by ELISA and the POC immunosensor have then been compared and a strong correlation was found between the two methods.

Although further investigations should be performed with samples exposed to natural TTX environment contamination, the present data showed promising feasibility in using POC as a faster detection method for discrimination among contaminated and uncontaminated samples, even when using TTX dosage lower than the EFSA limits for this specific food contamination.

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P549

Effects of diets containing *Hermetia illucens* and poultry by-products meals on *Dicentrarchus labrax* intestinal enzymatic activities. Results of a commercial production trial

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Aquaculture is facing the challenge of being developed following the circular economy concept; in this regard, the choice of sustainable, nutritious, and non-conventional aquafeed ingredients should answer this need. The SUsustainable fiSH feeds INnovative ingredients—SUSHIN project has recently proposed a combination