



## **PUFFERFISH, *Spholoides pachygaster* (GÜNTHER, 1870) AT THE NATURAL HISTORY MUSEUM OF MONTENEGRO**

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### **SYNOPSIS**

#### **Key words:**

*Spholoides pachygaster*,  
dermoplastic  
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The collection of fish at the Natural History Museum of Montenegro consists of 60 exhibits. For the most part, they are dry or dermoplastic preparations. Among them is *Spholoides pachygaster* (Günther, 1870) the only specimen of this species caught in Adriatic Sea.

### **INTRODUCTION**

The Natural History Museum of Montenegro deals with systematic research of natural values, collecting, expert and scientific treatment of the natural materials, keeping, preserving, preparation and displaying of the museum exhibits. Among the most valuable exhibits are rare, endemic and endangered species of plants, animals, fungi and lichen.

The collection of fish counts 60 dermoplastic (dry) and wet exhibits, among which are the pufferfish, goldfish, carp, brown trout, sea serpent, sunfish...

*Spholoides pachygaster* (Günther, 1870) (fam. Tetraodontidae) was caught near Budva in 2007. This and other species of the Tetraodontidae family are common in tropical waters (May and Maxwell 1986). The first reliable data on their presence in the Mediterranean Sea were given by Akyol et al. (2005), then Corsini et al. (2006), Bilecenoglu et al. (2006), Kasapidis et al. (2007).

*Spholoides pachygaster* (Günther, 1870) belongs to pufferfish, unusual fish that can increase the volume of their bodies when in danger. The meat of these fish contains a toxic substance – tetrodotoxin, which can lead to consumers death due to

the paralysis of respiratory organs (Bilecenoglu et al. 2006). In spite of that, in some parts of the world (Japan) this fish is highly valued and prepared as a delicacy by specially trained chefs. Tetrodotoxin is characteristic for the species of the family of Tetraodontidae, fish that have strong jaws, each with two square teeth, up to 1cm in size.

## MATERIAL AND METHODS

There are two ways of preparing fish: wet and dry or dermoplastic method (Alinger, 1948). Wet preparations are made when it is necessary to save all of the morphological and anatomic characteristics of the fish. Dry preparation understands the modelling of the body of the fish in order to keep its natural appearance. With dry preparation certain measures are taken firstly: weight, length of the body, length of the spacing between the eyes, length from the head to the dorsal fin, width and length of the mouth (Table1).

**TABLE 1. Dimensions of the pufferfish**

Weight	4 800 g
Length of the body	45,5 cm
Length of the spacing between the eyes	5,5 cm
Length from the head to the dorsal fin	7 cm
Width of the mouth	4 cm
Length of the mouth	3 cm

The first cut is made on the abdomen of the fish. After that, the skin of the fish is peeled and the meat is removed. The removing of the meat from the skin is always done from the tail towards the head. It is very important to remove all of the meat and fat from the skin, because of the longevity of the preparation (Alinger, 1948) (Photo 1).



**Photo 1. Peeling of the skin (photo: O. Vizi)**

When working with fish we save the scull in order to preserve the natural appearance of the head.

The internal side of the skin is treated with the concoction made of 96,5% arsenitrioxide, hot water, thick soap, 96% pure alcohol and camphor (conservation of the skin) (Photo 2).



**Photo 2. Conservation of the skin (photo: O. Vizi)**

According to the previously taken measures, an artificial body of the fish – the model is made of polystyrene.

After 2 to 3 hours we put the skin onto the modelled body of the fish. The skin is glued on the place of the original cut (the abdomen of the fish). The eye cavities are covered with artificial i.e. glass eyes. Finally the whole preparation is coated with nitrogen based lacquer (Photo 3).



**Photo 3. Pufferfish, exhibit on display (photo: O. Vizi)**

## CONCLUSION

The collection of fish at the Natural History Museum of Montenegro consists of 60 exhibits which are, for the most part, dry or dermoplastic preparations. Among them there is a rare fish in the Adriatic Sea - *Spholoides pachygaster* (Günther, 1870). Considering the very dated and sparse literature from this area of research, pufferfish has been prepared via old, classical method by Alinger (1948) relying on our own previous experience.

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