

BLOOD CELL COUNT OF *MURAENA HELENA*, L.1758. FROM EASTERN ADRIATIC SEA NEAR DUBROVNIK, CROATIA

D. Dikić¹, D. Skaramuša^{2*}, D. Lisicic¹, V. Benkovic¹, A. H. Knežević¹, S. Matic-Skoko³, P. Tutman³, A. Gavrilovic² and B. Skaramuša²

¹ Department of Aquaculture, University of Dubrovnik, Ciria Carica 4, 20000 Dubrovnik, Croatia - daria.skaramuca@zg.t-com.hr

² Department of Animal Physiology, Division Biology, Faculty of Science, University of Zagreb, Rooseveltov trg 6, 10000 Zagreb

³ Institute of Oceanography and Fisheries, Šetalište I. Meštrovića 63, 21000 Split, Croatia

Abstract

Due to insufficient data on physiology, haemathology and immunology of *Muraena Helena*, L. 1758 a field study was conducted to measure the blood parameters of wild caught specimens from eastern Adriatic Sea, Elaphite islands, near Dubrovnik, Croatia.

Keywords: *Adriatic Sea, Fishes, Physiology, Cell*

Introduction

Blood cell analysis is an indicator of physiological condition and health status of fish engaged in aquaculture or ecotoxicological studies. Spotted moray eel, *Muraena helena* L.1758 is biologically and commercially interesting species. To our knowledge data on physiology, haemathology or immunology of this species are insufficient [1, 3]. In august 2009 a field study was conducted to establish the blood parameter values of wild caught Morays from eastern Adriatic Sea, Elaphite islands, near Dubrovnik, Croatia.

Materials and Methods

Morays (n=9) were caught with 300 m long line hooks on a depth of 20-30 meter. The hooks were set at 03:00 at night with squid chunks as bait, and collected two hours later. The average length was 72.37 ± 13.41 body weights were 1296.33 ± 804.45 . All fish were collected alive and proceeded to blood collection immediately on spot. Each fish was sedated for 15 minutes with MS222 in a 100 L plastic barrel in oxygenated sea water (dose of MS222= 250 mg/L). After sedation blood was collected from the heart with a 10 ml syringe washed with anticoagulant heparin. Blood was immediately diluted 1:200 with Nett-Harricks dye. Cell parameters were evaluated in blood by standard non-automated haemathology assays using Bürker-Turk haemocytometer.

Results

Average red blood cell (RBC) count and platelet count was $3.513 \pm 1.471 \times 10^{11} / L$. Average white blood cell (WBC) count was $9.33 \pm 4.72 \times 10^{10} / L$. Mean hematocrit values were 23.22 ± 8.13 .

Tab. 1. Average biometric and selected hematology parameters of wild caught Spotted Moray eels

	Body length (cm)	Body weight (g)	RBC and platelet ($\times 10^{11} / L$)	WBC ($\times 10^{10} / L$)	Hematocrite
Mean	72.37	1296.33	3.513	9.33	23.22
SD	13.41	804.45	1.471	4.72	8.13

Discussion

Shape, size and structure (Fig.1) of erythrocytes were similar as in majority of other fish species [2].

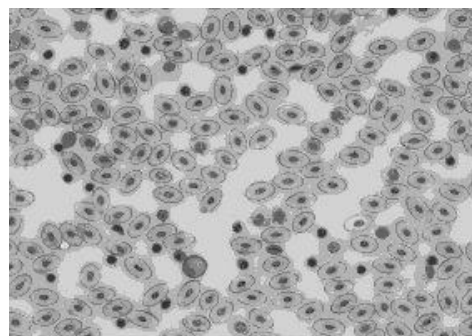


Fig. 1. Blood cells of Spotted Moray from eastern Adriatic Sea, Elaphite islands, near Dubrovnik, Croatia

Similarly, all leukocyte types typical found among variety of fish species were also recorded in Moray's blood, as same as trombocytes of round, spindle and oval shapes [1].

References

- 1 - Wilhem Filho D, Eble GJ, Kassner G, Caprario FX, Dafré AL, Ohira M., 1992. Comparative hemathology in marine fish. *Comp Biochem Physiol Comp Physiol.*; Jun;102(2):311-21 (scientific article).
- 2 - Glomski CA, Tamburlin J, Chainani M., 1992. The phylogenetic odyssey of the erythrocyte. III. Fish, the lower vertebrate experience. *Histol Histopathol.*; Jul 7(3):501-28. Review (scientific article).
- 3 - Pellegrini M, Giardina B, Olianias A, Sanna MT, Deiana AM, Salvadori S, Di Prisco G, Tamburrini M, Corda M., 1995. Structure/function relationships in the hemoglobin components from moray (*Muraena helena*). *Eur J Biochem.* Dec 1;234(2):431-6 (scientific article).