



Marine Biodiversity
Conservation Center
AQUARIUM BOKA

AdriBioPro2019 | 7-10 April
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Book of Abstracts



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MORA



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Institute of Marine Biology,
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Presentation title

Comet assay – a sensitive method for detection DNA damage and primary monitoring of ecosystem pollution pressure

Abstract

Untreated municipal wastewaters are one of the major negative contributors on freshwater quality, and consequently on ecosystem balance. Some compounds such as pharmaceuticals, cosmetic products, etc. could be genotoxic and lead to somatic and/or germinative mutations. This mutation should be reflected on organisms' health and reproductive potential. Comet assay is a widely used test in ecogenotoxicology for detection of primary DNA damage. In that way, this sensitive test could provide information about early warning signs of potential stressors effects before those have an impact on the population or ecosystem level.

The scope of our study was to assess the level of DNA damage of *Alburnus alburnus* specimens' gill cells and erythrocytes. Three sites on the Sava river were chosen: reference site Zabran suited upstream the municipal discharging; second at the confluence of the Kolubara river and the Sava river; and the third at the confluence of the Barička river and the Sava river. The Kolubara river and the Barička river are chosen as important recipients of untreated wastewaters. From each site, 5 bleak specimens were collected and blood and gills were taken. Tail Intensity (TI%) was chosen as a parameter for evaluating the level of DNA damage. Besides that, cell viability and extremely damaged cells - hedgehogs (HH) were determined.

The significant difference in TI% values was recorded in erythrocytes and gills cells in comparison between the Zabran (TI%=14.01±0.61 in erythrocytes, TI%=15.25±1.03 in gills cells) and the second site (TI%=18.53±0.65 in erythrocytes, TI%=22.78±1.89 in gills cells). Correlation between cell viability and HH frequency was not observed.

According to the results, we could conclude that the second site is the most affected by pollutants. Also, usage of comet assay on freshwater organisms could be appropriate for preliminary screening of ecosystem state.