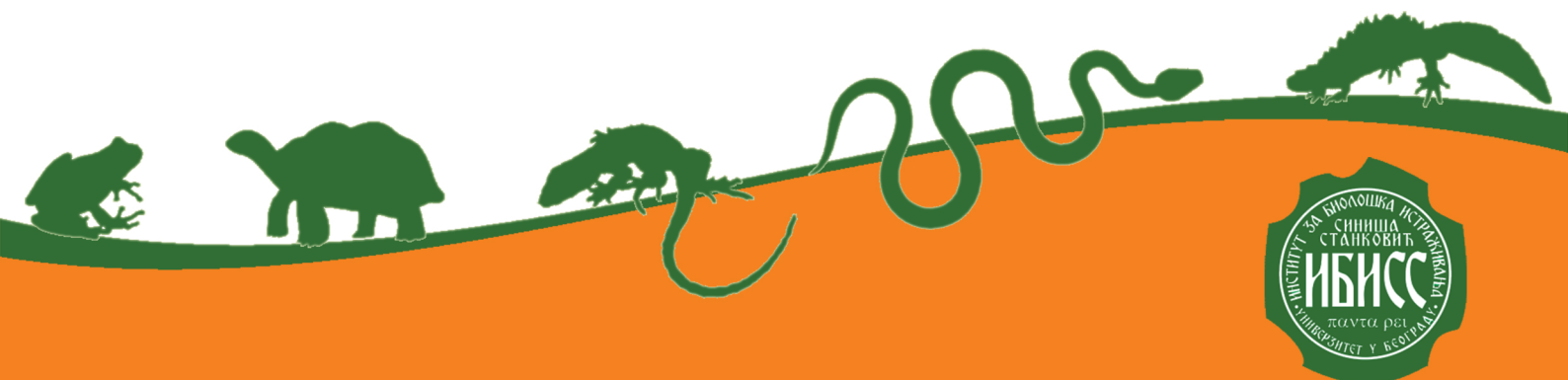




Program & Book of Abstracts

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Anatomy and morphology

Poster presentation

Changes in thyroid histomorphology and thyroglobulin immunostaining upon exposure to endocrine disruptor thiourea in *Triturus* newts

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Aquatic ecosystems receive the majority of global pollution. Therefore, aquatic organisms are the most exposed and the most vulnerable as penetration of various endocrine disruptors is easier, resulting in high bioavailability and bioaccumulation of chemicals. One of the potent endocrine disruptors (anti-thyroid agents) is thiourea, which chemically blocks the synthesis of thyroid hormones and prevents metamorphosis in amphibians. The mechanism of action is very similar for all anti-thyroid agents via inhibition of thyroid peroxidase enzyme (TPO), thereby inhibiting iodination of tyrosine residues in thyroglobulin, the oxidative coupling of iodinated tyrosine and therefore the biosynthesis of the thyroid hormones. We investigated the influence of two non-lethal concentrations of thiourea (0.05% and 0.1%) on histomorphology of the thyroid gland in *Triturus* newts at the metamorphic stage, when TH concentrations should reach maximum level. Exposure to thiourea induced hypertrophy and hyperplasia of follicular cells as well as a significant reduction ($p < 0.05$) of interstitial tissue. Intensity of thyroglobulin immunostaining significantly decreased ($p < 0.05$) upon both thiourea treatments. Additionally, we tested mammalian thyroglobulin antibodies for immunohistochemical assessment of the thyroid follicular tissue in newts. Successful cross-reactivity of human primary antibody in immunochemical detection of thyroglobulin in *Triturus* newts in this study confirms potential homology in protein structure throughout the vertebrates.