The structural and ultrastructural comparative studies of thyroid differentiation in grass snake (*Natrix natrix* L.) and sand lizard (*Lacerta agilis* L.)*

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The thyroid gland has a long evolutionary history and it is the first endocrine structure to become recognizable during an animal's development. Even though the thyroid gland is structurally conserved in all vertebrate species, exhibiting a similar follicular structure and function, there are some gross morphological differences among species, and the responses of this structure to environmental influences are also different across the phylum. The thyroid gland consists of individual structural and functional units-follicles that evolutionarily descended from the ancestral endostyle of primitive Chordata. The purpose of this study was to compare developmental process of thyroid gland differentiation in grass snake *Natrix natrix* L. and sand lizard *Lacerta agilis* L. The eggs of the *Natrix* and *Lacerta* were incubated in the constant temperature at 30°C and the embryos were isolated, starting at eggs lying and finishing at hatching of the first individuals. The age of *Natrix* embryos was calculated using the table of species development (Rupik, 2002) but the age of *Lacerta* embryos was calculated using the developmental table of Peter (1904). The ultrastructural findings show that: during early developmental stages, cells of the thyroid primordium in sand lizard embryos had ultrastructural features that were basically similar to those of the thyroid primordium in grass snake. However, single cells that contain giant lipid droplets have been found within the undifferentiated cellular cords in embryos of *Lacerta*. Similar cells were not found in early thyroid primordium of grass snake. Even though the follicular lumen in sand lizard embryos is differentiated by cavitation similar to that in the grass snake, there were very important differences during the early stages of the differentiation of the cellular cords and the formation of the thyroid follicles. The activity of the embryonic thyroid gland in *Natrix* and *Lacerta* are different. In grass snake embryos the activity of thyroid gradually increased, and at the time of hatching, it exhibited the features of a fully active gland. In sand lizard embryos the thyroid exhibited the features activity very early but just before hatching the activity of the gland gradually decreased.

REFERENCES

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