ALKALINE PHOSPHATASE LPS DEPHOSPHORYLASE ACTIVITY DURING BULLFROG’S (Lithobates catesbeianus) METAMORPHOSIS


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Metamorphosis is a crucial period in amphibian’s development, characterized by a series of events, which enable the tadpoles to change from aquatic to terrestrial environment. The liver is an important organ in animal metabolism, being responsible for nutrients processing and distribution through the blood system to other organs and tissues and the metamorphosis is a critical period which involves various changes in animal morphology and biochemistry. Since the liver is responsible for various important synthesis processes and there is a lack of information about the functions of hepatic alkaline phosphatase yet, the aim of this study was to analyze its activity of LPS dephosphorylase involved in the detoxification during this process, to bring new insights about this life period of the animal. The animals were kept in aquaria at 27°C, and separated by stages of development. The livers were collected at each stage and homogenized in TRIS.HCl buffer pH 7.5, containing 2 mmol.L⁻¹ MgCl₂ and 1 µmol.L⁻¹ ZnCl₂, centrifuged at 10,000 g for 10 minutes at 4°C, aliquoted, frozen in liquid nitrogen and stored at -70°C. The activity of alkaline phosphatase was assayed using LPS (E. coli serotype 055:B5) as substrate, at pH 7.4. The enzymatic activity increased from 3.94 (stage 42) up to 5.15 U.mg⁻¹ (stage 46), which follows the changes in gram-negative bacteria density, showing the importance of the LPS dephosphorylase during metamorphosis. It is important to emphasize that the immune system of the animal is suppressed during the metamorphosis, due to the transformations which occur in this process. Therefore, suggesting that alkaline phosphatase LPS dephosphorylase activity plays an essential role in the capacity of the animal to endure the changes during metamorphosis and immune system suppression.

**Key words**: lipopolysaccharide; hepatoprotection; lysosome.

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