

RESPIRATORY ACTIVITY OF ISOLATED MITOCHONDRIA FROM ORGANS AND TISSUES OF THE ANTARCTIC FISH *Trematomus bernacchii*, *Trematomus newnesi*, *Lepidonotothen nudifrons*, and *Pagothenia hansonii*

MALUCELLI, M.I.C.¹; SUGIZAKI, M.²; SALVO, L.M.³; LUCCHIARI, P.H.²; BACILA, M.²

¹Programa Antártico Brasileiro, DTI-Conselho Nacional de Pesquisas;

²Pontifícia Universidade Católica do Paraná, PUCPR;

³Doutoranda, Faculdade de Medicina Veterinária e Zootecnia, USP.

Many of the key evolutionary adaptations for life in the Antarctic Ocean involve refinements of physiological and biochemical processes. Especially prominent are mechanisms that prevent freezing and allow cells, tissues and organs to carry on their metabolic activity at subzero water temperatures. In the present research work a study has been carried out on the respiration activity, assayed at 0°C, 5°C and 10°C of pectoral fin epaxial muscle and encephalon isolated mitochondria from the Antarctic fish *Trematomus bernacchii*, *Trematomus newnesi*, *Lepidonotothen nudifrons*, and *Pagothenia hansonii* using sodium succinate as substrate. For the interval between 0°C and 5°C respiration rate of encephalon mitochondria from *Pagothenia hansonii* increased 1.85 times, and for the interval between between 0°C and 10°C, 1.94 times. Or the fin pectoral epaxial muscle sarcsomes, there was na increasing of 1.3 times of the respiration rate between 0°C and 10°C. Respiration rates of isolated mitochondria from encephalon and fin pectoral epaxial muscle were also assayed with *Trematomus bernacchii*, at 0°C, *Lepidonotothen nudifrons*, at 0°C to 10°C and with *Trematomus newnesi*, at 0°C, 5°C and 10°C. The mitochondria respiratory activity was expressed in m(Mol O₂ . L⁻¹. s⁻¹/mg of protein and respiratory control was measured between state 3 and 2 of respiration.

Key Words: respiratory, mitochondria, antartic fish.

Apoio: CNPq/PROANTAR/SECIRM/PUCPR.