

ABSTRACT

Effect of Environmental Temperature on The Number of Nitroergic Neurons In Green Iguana's (*Iguana iguana*) Ileum in Small, Medium, and Large Diameter

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Environmental temperature has an important role in the physiology of the animal's body, especially in the iguana. Green iguanas (*Iguana iguana*) are classified as ectotherms animals, therefore cell activity in the iguana's body will be greatly influenced by the ambient temperature. The purpose of this study was to determine the effect of environmental temperature on the number of small, medium and large diameter nitroergic neurons in green iguana's ileum. Nine iguanas were adapted in individual cages with an ambient temperature of 32°C with light photoperiods fed and drank *ad libitum* for 7 days. Then all the iguanas were randomly divided into three groups with different temperature treatments, namely as the KI at an ambient temperature of 24°C, KII at an ambient temperature of 28°C, and KIII at an ambient temperature of 32°C as a control. After 7 days of treatment, all the iguanas are anesthetized with ketamine and xylazine, then euthanated by intra-cardiac embolism. The abdomen was dissected to take a sample of the ileum by a transverse cut of about 1 cm. The ileum samples obtained were stained with Nicotinamide Adenine Dinucleotide Phosphate-diaphorase (NADPH-d) to determine the morphology of neurons and analyzed descriptively. The number of small, medium and large diameter nitroergic neurons was analyzed statistically using a One Way ANOVA. The results showed that the nitroergic neuron diameter of KI are small = 5.57-28.93 µm, medium = 29.35-48.47 µm, large = 49.55-71.23 µm; KII's diameter are small = 4.71-28.94 µm, medium 30.31-48.84 µm, large 49.31-64.54 µm; and KIII' diameter are small = 6.84-33.78 µm, medium = 33.80-50.10 µm, large = 50.96-71.06 µm. The total of nitroergic neuron diameter of KI are small = 13 ± 1 , medium = 70.67 ± 2.31 , large = 14.67 ± 0.58 ; KII's are small = 13.67 ± 1.53 , medium = 71.67 ± 2.89 , large = 14.67 ± 1.53 ; KIII's are small = 20.67 ± 4.04 , medium = 61 ± 5.57 , large = 20 ± 3 . Statistical analysis was continued with the Tukey Post-hoc test. The results showed that the environmental temperature under control (32°C) has a significant effect ($p < 0,05$) on the diameter and number of small, medium and large diameter nitroergic neurons of ileum. It can be concluded that the lower the ambient temperature (24°C) the smaller the number of small, medium and large diameter nitroergic neurons.

Keyword: green iguana, ileum, nitroergic neurons, environmental temperature