

RESEARCH ARTICLE

Influence of biotic environmental factor temperature on free amino acid content in *Channa punctatus* from Nanded region

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ABSTRACT..... Out of various environmental factors that influence aquatic organisms, temperature is the most all-pervasive. Water is one of the precious liquid in the natural resources available. A plentiful supply of clean water is essential for survival of human being, plants and animals. It is most notable factors which influence the aquatic organisms including fish. One important component in biochemical reactions in animal architecture act as a building block in amino acids which are vital components for all living organisms. They are important fuel molecules, signaling factors and major substrates for the synthesis of a wide range of bioactive molecules and proteins. The present investigation deals with the effect of temperature on free amino acid level of freshwater fish *Channa punctatus*. The fishes were exposed to different temperatures viz., 15°C, 20°C, 30°C and 35°C for 24, 48, 72 and 96 hours, respectively. The results of the present experiment reveals that the FAA content in muscle and liver of *Channa punctatus* increased as the temperature increases. At lower temperature stress, the fish showed decrease in the FAA content.

KEY WORDS..... Temperature, Free amino acid, *Channa punctatus*

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INTRODUCTION.....

The global warming results climatic changes. It is ascribable in large part to human activities causing rapid deterioration of the environment and is increasing the threat to biodiversity (Kumar *et al.*, 2009). Out of various environmental factors that influence aquatic organisms, temperature is the most all-pervasive (Brett, 1970; Reynolds and Casterlin, 1980). Water is one of the precious liquid in the natural resources available. A plentiful supply of clean water is essential for survival of human being, plants and animals. It is most notable factor which influences aquatic organisms including fish (Itoi *et al.*, 2003). The temperature fluctuations in environment affects the metabolic activities of freshwater fishes (Murugaian *et al.*, 2008).

One important component in biochemical reactions in animal architecture act as a building block is amino acids. Amino acids perform various functions like formation of

proteins and peptides, formation of hormones of thyroid glands, transport of lipid molecules within a cell, protection against harmful oxidizing agents. They actively participate in the metabolic activities which serve as a prime metabolic source of living cells and they also act as neurotransmitters. They also function in the detoxification pathways involving ammonia and serve as attachment sites for carbohydrates. Overall, amino acids play a key molecule in cellular metabolism. Proteins in an animal are being constantly degraded and re-synthesized from the free amino acid pool in tissue (Saha and Das, 1994). The present study was conducted to find out the effect of fluctuating environmental temperature on freshwater fish, *Channa punctatus* free amino pool.

RESEARCH METHODS.....

The freshwater fish, *Channa punctatus* was collected from the Godavari river, Nanded (Maharashtra) with the help