

Protein Estimation in the Body of Tetragonocephalum Pulensis From A Marine Water Fish TrygonSephen

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ABSTRACT

Cestodes are endoparasites found attached to the Wall of the intestine. They are finally attached the host intestine through their suckers and hooks of the rostellum. The remaining body is freely held in the lumen of the host intestine. The naked covering of the body of the parasite is permeable to physiological substances. Proteins are the most abundant organic molecules in the cells containing 50% or more of their dry body weight. They are found in every part of every cell, since they are fundamental in all aspect of cell structure and function. There are many different kinds of proteins each specialized for a different biological function. The Tetragonocephalum Pulensis is the scolex divided into two mature segments are longer than broad; Testis are Preovarian, ovary is bilobed and H shaped, Vitellaria are granular arranged in 2 or 3 rows.

Key Words: -TrygonSephen, Biochemical Composition of Protein

Introduction: - In a present day on a global scale, the fish and fish products are the most important source of protein in the human diet. This protein is relatively of high digestibility compared to other protein sources. Research in the field of parasitology have started knowing the physiological and biochemical aspects of the parasites right from the beginning of the nineteenth century. Importance of biochemical studies has been the right during the beginning of the 20th century (Chang 1964).

There are many different kinds of protein each specialise for different biological function moreover most of the genetic information is expressed by protein. The term protein is derived from Greek word “proteios” meaning holding the first place. Berzelia

(Swedish chemist) suggest the name proteins to the group of organic compounds that almost important to life. Protein perform great variety of specialized and essential functions in the living cells. Their functions may be broadly grouped as static structure and dynamic.

Cestodes are endoparasite, found attached to the wall of the intestine. They are finally attached to the host intestine through their suckers and hooks of the rostellum. The remaining body is freely held in the lumen of the host intestine. The naked covering of the body of the parasite is permeable to physiological substances. As a matter of fact, the body covering exchanges the material in the intestine of the lumen by the active and passive transport mechanism. Hence the biochemical composition of the parasite is subjected to variation and these variations are likely to be influenced by the variation of the host.

Materials and Method: - Protein estimation in cestode parasites was carried by Gornall et.al. (1949) method. Ten intestines of Trygon Sephen were brought to laboratory and dissected for collection of cestode. Out of sixteen intestines, five of them were found to be heavily infected with cestode parasites. By observing the identical worms under the microscope, few of them were fixed in 4% formalin for morphological study.

Small pieces of infected intestine were also collected for estimation of protein. The collected worms kept on blotting paper to remove excess of water from the body of cestodes. Then worms were transformed into watch glass and wet weight of the worm was noted. Then the material was kept at 70 to 80 °C till it dries completely. Dry weight of the tissue was taken and material was ground in mortar and pestle to form fine homogenate with 5 ml of sucrose and 5 ml of 10% TCA. The homogenate was centrifuged for 10 minutes at 2000 R.P.M. Supernatant was discarded & residue was taken in a test tube, to this 1 ml of distilled water and 3 ml of Biuret solution was added. The tubes were kept for half an hour until the lavender colour developed. The optical density was measured on calorimeter at 530 nm. Similarly, the optical density of known solution was measured on calorimeter at 530 nm.

The amount of protein in the worm was calculated by the formula

$$\frac{\text{O.D. of unknown tissue}}{\text{O.D. of known tissue}} \times (\text{mg of protein / wt. of tissue taken}) \times 1000$$

O.D. of unknown tissue = 0.25, O.D. of known tissue = 0.50

Mg of tissue protein = 10 weight of tissue taken = 100 mg

$$(0.25/0.50) \times (10/100) \times 1000 = 5.0 \text{ mg/gm of wet tissue}$$

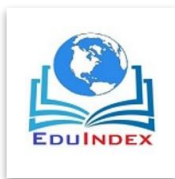
Amount of protein content = 5.0 mg/gm of wet tissue

The protein percentage of hosts intestine TrygonSephane was estimated by the same procedure. The obtained results show that the intestine 5.0 mg/gm wet weight of the tissue.

Conclusion: - From the above result when compared shows that the worm *TetragonocephalumPuleensis* n. sp. could maintain a good balance in protein content with the hostTrygonSephane.

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