

ISSN 2348-5914
JOZS 2017; 4(1): 17-20
JOZS © 2017
Received: 12-01-2017
Accepted: 10-03-2017

Paper chromatographic studies of amino acids in Cestode parasites

Gholap AB^A, Wankhede HJ^B

^A Department of Zoology, P.V.P, College, Pravaranagar, Ahmednagar (M.S), India

^B Director, Institute of Science, Aurangabad (M.S), India

Corresponding Author: Gholap AB

Abstract

An experiment conducted at Department of Zoology PVP, College, Pravaranagar Biochemistry or biological chemistry is a study of chemical processes occurring into body of living organisms. One of the characteristics of Cestode physiology is a high rate of protein synthesis. The ability of cestodes to synthesize large amountsof protein is manifested by their high rate of egg production, which begins with maturation, and by the formation of proglottides, which is more or less continuous throughout the life of apolytic species. Although the ability to synthesize large amounts of protein has been known for quite some time, it is only recently that there have been investigations of the intermediary protein metabolism of these animals. The paper chromatographic intensity of ninhydrin positive spots along with the results Rf value of Amino acids, out of 20 can detect 8 different type of amino acid are found in Cestode parasites they are Arginine, Glycine, Proline, Tyrosine, Valine, Histidine, Isoleucine, Serine, which are use for biochemical Studies.

Keyword: Cestode parasite, *Gallus gallus domesticus*, Paper Chromatography, Rf value, Proline, Tyrosine, Valine, Histidine,

1. Introduction

Biological chemistry deals with the structures, functions and interactions of biological macromolecules, such as carbohydrates, proteins, amino acid and lipids, which gives structure to cells and carry out many biological functions connected with life. Aves include the birds, an extremely distinctive and successful clade, with an estimated 10,417 species worldwide Birds are the only terrestrial vertebrates that share with humans the peculiarity of traveling in a few hours across national and international borders^[12,13]. As a whole, billions of birds travel between continents twice a year in only a few weeks They may be a source of dissemination of parasites, which may cause fatal diseases in humans because birds harbor both micro parasites as well as macro parasites and have been reported to be infected with pathogens Given their ability to fly freely and cover long distances during annual migrations, migratory birds potentially play a role in the epidemiology of human-associated zoonoses^[14,15].

Birds are valuable and useful to humans for many reasons. A large proportion of normal food of the birds consists of insects including many that are injurious to man and his concerns. Birds also supply both eggs and meat, which are the direct source of protein to humans^[6,7]. Birds, therefore, seem to be important both commercially as well as from the public health point of view. Heavy helminth infection in poultry causes direct economic losses through mortalities and a drop in egg-laying capacity, or suspended egg production among the birds like other animals, man has also been shown to be infected with helminth parasites causing weakness and severe disease, which may result into death of the host if not treated properly. Thus, the problem of helminthiasis in most parts of the world^[8,9].

In the body of living organism Protein is main constituent of the body. Protein may define a high molecular weight mixed players of amino acids joined together with peptide linkage (-co-NH-). Protein is the chief constituents of all living matter. They contain carbon, hydrogen, nitrogen and some contain phosphorous also.

In the study of living matter uphill new the Accidental who discovered total 20 amino acids. Each & every amino acid are of different types and each amino acid have different structural formula. These amino acids are very important to the every living body.

Whereas Cestode parasites are the one of the Class of helminthes parasites, *Gallus gallus domesticus* (Hen) have a great socio-economic importance than other animals domesticated by humans. However, these domestic fowl are infected with helminth infection, which is responsible many diseases to human beings^[2,4,5].

Chromatography is partially characterized by the medium on which the separation occurs. This medium is commonly identified as the “stationary phase”. Stationary phases that are typically used include paper (as in this experiment), thin plates coated with silica gel or alumina, or columns packed with the same substances. The “mobile phase” is the medium that accompanies the analyzed substance as it moves through the stationary phase. Both liquids and gases can be used as mobile phases depending on the type of separation desired. To refer to gas or liquid chromatography, chemists often use the abbreviations GC or LC, respectively. These abbreviations explicitly identify the phase of matter of the mobile phase. The term “paper chromatography” used in this experiment’s title identifies the composition of the stationary phase^[1,3].

The present work has been detects various amino acids from the Cestode parasite performing experiment by paper chromatographic method.

2. Material and Method

The present work done in Department of Zoology P.V.P. College, Pravaranagar in that Five Cestode parasites were collected from the intestines of *Gallus gallus domesticus*, Two Cestode Parasites are homonized in to Distil Water as a sample. This solvent mixture is prepared by taking the n-butyl alcohol, acetic acid water (4:1:5) respectively. And use it for chromatography Sample. This Ninhydrin spray is prepared by dissolving the 200 mg of ninhydrin crystal in 100ml of 95% alcohol+15ml or pyridine. This solution is called as detection Spray of ninhydrin^[1,3].

3. Result and Discussion

The Table no-1 shows that identification of amino acid, for the comparison of standard Rf value of amino acid with the calculated Rf values which were found in the Cestode parasites of Hen.

Table 1: Rf Values of Amino Acids and Parasites Sample

Sr. No	Amino acid	Std Rf value cm	Experimental Rf Value cm
1	Histidine	0.7	0.40
2	Glutamic acid	0.16	0.34
3	Threonine	0.22	0.07
4	Valine	0.47	0.16
5	Serine	0.10	0.11
6	Lysine	0.10	0.55

7	Ornithine	0.41	0.41
8	Isoleucine	0.55	0.55
9	Proline	0.17	0.18
10	Glycine	0.17	0.25
11	Arginine	0.11	0.9
12	Leucine	0.16	0.1
13	Methionine	0.40	0.67

The above experiment results Shows that, with location Concern about 8 different Type of amino acid out of 20 can detect in Cestode parasites by applying the chromatography method. It gives purple and yellow colored Spot of amino acid and Parasites Sample. The purple color is due to the free amino group present in all amino acid except praline. Because proline give yellow color due substitution of amino group present in only in the proline ^[10,11].

Following amino acid can be found in the Cestode Parasites by comprising the Rf Values of some standard amino acid with calculated with experimented Rf values.

Graph 1: Showing Rf Values of Amino Acids and Parasites Sample

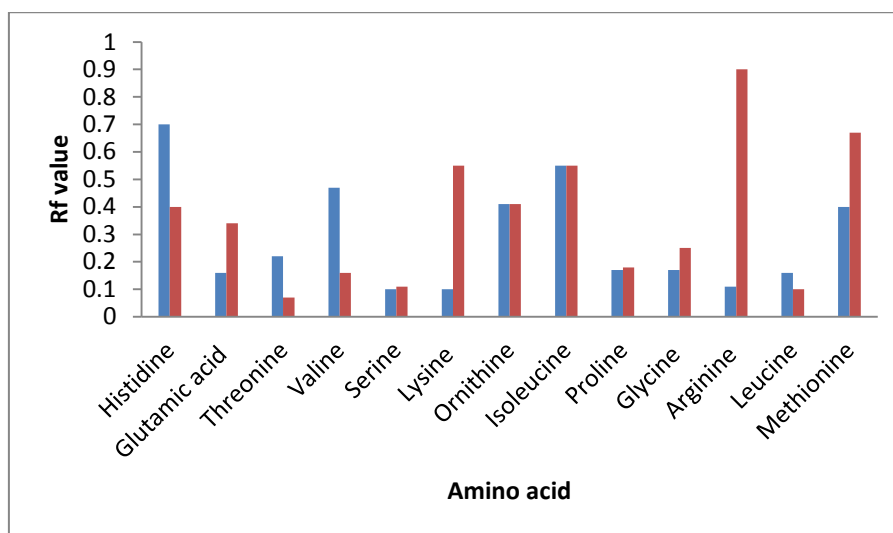


Table 2: Amino acids found in the Cestode Parasites

Sr. No.	Amino acid Found in Cestode Parasites
1	Arginine
2	Glycine
3	Proline
4	Tyrosine
5	Valine
6	Histidine
7	Isoleucine
8	Serine

4. Conclusion

From the study it been revealed that paper chromatography is the simplest method to separate the amino acid contents in Cestode Parasites. Because the amino acids are the low molecular weight compound which can easily be separated on the chromatography according to their values. Different amino acid can be occurring on the chromatography regarding their molecular weight, in the form of colored spots. All the amino acid gives purple spot except proline which gives yellow spots in the chromatography. For Above Experiment detection of amino acid in Cestode parasites, help for to find out the Novel Drug to control the infection.

5. Acknowledgment

The authors are thankful to the Principal Dr. P.M. Dighe, P.V.P, College, Pravaranagar, Ahmednagar (M.S), India, Dr. H.J. Wankhede Director, Institute of Science, Aurangabad (M.S), India and Department of Zoology, P.V.P, College, Pravaranagar for providing laboratory facilities and encouragement during Research work.

6. References

1. Barret, Biochemistry of helminth parasitic. Ed.-2th, 1982, 210-235.
2. Benjamin MM. Outline of veterinary clinical pathology 3rd ed. Kalyani Publisher New Delhi. 1985, 5-316.
3. Jayaraman J. Laboratory manual in Biochemistry. Ed.-1st, 1984, 65-66.
4. Jordan FTW, Pattison M. Poultry Diseases. 4th Edition, WB Saunders, London. Life Science, 4 (3) :1998, 63-66
5. Natt MP, Herrick CA. New blood diluents for counting the erythrocytes and leucocytes of the chicken. Poultry Sci (3). 1952, 735-738.
6. Ots I *et, al.* Health impact of blood parasites in breeding great tits. Oecologia (116) 1998, 441-448.
7. Ruane NM, Nolan DT, Rotllant J, Costelloe J, Wendelaar Bonga SE. Experimental exposure of rainbow trout *Oncorhynchus mykiss* (Walbaum) to the infective stages of the sea louse *Lepeophtheirus salmonis* (Krøyer) influences the physiological response to an acute stressor. *Fish and Shellfish Immunol.* 2000;10(5):451-463. DOI:10.1006/fsim.1999.0260.
8. Shinha DP, Sircar M. Haematological investigation on pigeon. *Annal Zoology.* 1974; (10): 1974, 1-11.
9. Sopinska A. Effects of physiological factors, stress, and disease on hematologic parameters of carp, with a particular reference to the leukocyte patterns. III. Changes in blood accompanying branchionecrosis and bothriocephalosis. *Acta Ichthyologica et Piscatoria, Milano.* 1985; (15): 141-165.
10. Talib VH, Khurana SK. Haematology for students New Delhi. CBS Pub.1995, 415.
11. William RB. Avian Malaria: clinical and chemical pathology of *Plasmodium gallinaceum* in the domestic fowl, *Gallus gallus*. *Avian Pathology.* 2005; (34): 29-47.
12. Yamaguti S. Studies of helminth fauna of Japan, part 50 Cestode birds, III. 53. 1956, 201-215
13. Yamaguti S. Studies of helminth fauna of Japan. Part 30. Cestode birds, II. Japan. I. 1940,175-211
14. Yamaguti S. Studies of helminth fauna of Japan. Part 30. Cestodes birds, II. Japan. *J. Zool. Med.Sc.* Soct. IV, V, I. 1940, 175-211.
15. Yokoyama H, Danjo T, Ogawa K. Hemorrhagic anemia of carp associated with spore's discharge of *Myxobolusartus* (Myxozoa: Myxosporrea). *Fish Pathol.* 1996; (31); 19-22.
