10	Purple	+	77	L-Leucine
11	Purple	+	87	DL-Isoleucine

Free amino acids in the adult male morph III (Pygidium-Brown with posterior and lateral black) of *C. analis*

Circular chromatogram pattern in the adult female morph III of C. analis has revealed 8 spots with varying colours of Brown, Purple Brown, and Purple Violet pink and yellow and Rf value ranging from 13 to 78.The 14 amino acids which could be identified in these spots are given Table 4 (Fig.3) with their different colour intensities (Dhindsa, K.S. and Saini, D. 2014).

Table 4: Colour ,colour intensity, Rf value and name of free amino acids present in male morph III (Pygidium- Brown with posterior and lateral black) of *C. analis*

Spot No.	*Colour*	*Colour Intensity*	*Rf value*	*Name of free amino acids present*
1	Purple	+++	13	L-Histidine,L- Arginine
2	Violet	++	18	L-Ornithine,L-Cystine
3	Purple Brown	++	27	DL-Serine,L-Lysine
4	Purple	++	35	DL-Aspartic acid, DL-Threonine
5	Purple Brown	++	47	DL- Tryptophan,DL-Alanine
6	Purple Yellow	+	52	L-Proline, DL Methionine
7	Purple	+	66	DL-Valine
8	Purple	+	78	L-Leucine

Free amino acids in the adult male morph IV (Pygidium-Brown with posterior and lateral black) of C. analis.

Circular chromatogram pattern in the adult female morph III of *C. analis* has revealed 8 spots with varying colours of Light Brown, Purple, and Purple Violet pink and Rf value ranging from 17 to 84.The XI amino acids which could be identified in these spots are given Table 5 (Fig. 4) with their different colour intensities.

Table 5: Colour ,colour intensity, Rf value and name of free amino acids present in male morph IV (Pygidium- Browishn with black background with white seta of C. analis

Spot No.	*Colour*	*Colour Intensity*	*Rf value*	*Name of free amino acids present*
1	Violet Pink	+++	17	L-Cystine,L- Ornithine
2	Purple	++	24	L-Lysine, DL-Serine
3	Purple	+	35	DL-Threonine, DL- Aspartic Acid
4	Purple	+	39	L-Glutamic acid
5	Light Brown	+	46	DL-Trytophan,DL-Alanine
6	Purple	++++	54	DL-Methionine
7	Purple	+	68	DL-Valine
8	Purple	+	84	DL-Isoleucine

Free amino acids in the adult male morph V (Pygidium-Brown) of C. analis.

Circular chromatogram pattern in the adult female morph V of *C. analis* has revealed 8 spots with varying colours of Purple , Purple Violet, and Violet pink and Rf value ranging from 18 to 84.The 12 amino acids which could be identified in these spots are given Table 6 (Fig.5) with their different colour intensities(Dhindsa, K.S. and Saini, D. 2014).

Table 6: Colour ,colour intensity, Rf value and name of free amino acids present in female morph V (Pygidium- Brown) of *C. analis*.

Spot No.	*Colour*	*Colour Intensity*	*Rf value*	*Name of free amino acids present*
1	Violet Pink	+	18	L-Lystine, L-Ornithine
2	Purple	++	24	L-Lysine , L-Serine
3	Purple Violet	++	33	DL-Aspartic acid , Glycine
4	Purple	++	43	L-Tyrosine
5	Purple	++++	54	DL-Methionine , L-Proline
6	Purple	++	60	DL-Butyric acid
7	Purple	+	73	DL-Phenylalanine
8	Purple	+	84	DL-Isoleusine

5. Discussion

Paper chromatography has been emphasized by various workers as an important tool in the establishment of development, taxonomical, genetical and many other kinds of relationships among various organisms. The present work was designed to determine the free amino acid composition in the various developments stages i.e egg, larvae, pupae and in the various polymorphs of adult males and female of *C. analis*. It is with a view to find out the role of free amino acids in development, if any, in this insect.

Based on the present research work, an attempt has been also made to compare the present data with that of known data either on this very group or on the other related animal groups. Difference in the free amino acids in various morphs (I-IV) of adult males of *C. analis*

In the present investigation, all the five morph I-V of adult males have revealed 9, 11, 8, 8 and 8 spots respectively. The five morph I-V carried 12, 16, 14, 12, and 12 amino acids respectively in them (Table VIII to XII and XV). L-Cystine, DL- Serine and DL- Methionone amino acids have been observed in allthe morphs. Although these amino acids are present inall the mprohs but their intensities differ with respect to each other, For Example L-Cystine is maximum in mproh no. IV to and L-Lysine in morph no. Iand DL-Methionine in morph nos II,IV and V. L-Histidine and L-Arginine could be seen in morph nos II and III only. L-Tyrosine and DL-Phenlalanione werealso seen in morph nos. I and V. Similarly , Glycine and DL—Butyric acid were present only in morphs nos .II and IV . l-Ornthine is present in all morphs except morph no. II ans DL-Isoleucine except no. II DL-Trytophan and DL- Valine is present in morph nos. I to IV.

These finding suggest that qualitative as well quantitative different of free amino acids exist among various morphs of adult males of *C. analis*. The difference in the amino acids result in varied biochemical activities in them resulting in the occurrence of different morphs both males and females of *C. analis* in nature (Dhindsa, K.S. and Saini, D. 2014).

6. Conclusion

The finding thus reveal that not only the different developmental stages, different sexes and different species vary in their FAA content but different body parts of the organisms also differ in the type, number and concentration