SUMMARY AND CONCLUSION

The exact mechanism involved in the thermoregulation and hypnosis still remains an enigma though thousands of papers have been published on some aspect or other on this direction. Different putative transmitters, especially the brain monoamines and prosta-

glandins have been implicated in the physiological regulations of the activity in different species of animals. Most commonly used animals are rats and rabbits. The poultry birds (leg horn chicks) are not commonly in use as an experimental animal, in spite of its easy availability and low cost. One of the possible reasons for non-inclusion, may be that the research workers are in opinion with a supposition that data acquired by working with avian species is irrelevant in respect of mammals, specially to rodents.
In the present study, to evaluate the possible physiopharmacological activity of prostaglandins and 5HT in chicks, pentobarbitone was used as a tool to note the hypnosis and hypothermia as an index in the chick as the mechanism of action of pentobarbitone in rodents are well documented in the literature. In the periphery, chick isolated preparation were considered to evaluate the gastrointestinal motility in presence of PGE\_1, 5HT and other known spasmodens.

PB hypothermia on rectal temperature was recorded by inserting telemeter probe to deep in the rectum and temperature was noted by telemeter.

PB hypnosis was studied by taking the time between the onset and regain of righting reflex. The time lapse between the two are designated as the index of hypnosis recording the sleeping time.

Drug interactions were included as a method to study the mechanism. Different drugs affecting metabolism and receptor activity were used in the study.

PB induced hypnosis was antagonised by 5HT synthesis inhibitor, p-CPV; 5HT receptor antagonist methysergide (in lower doses) and cyproheptadine (in higher doses). 5HT precursors 1-tryptophan, H\_1G inhibitor pargyline and tranylcypromine, 5HT antagonist (acting as agonist) methysergide (in higher dose) and cyproheptadine (in lower dose) potentiated the hypnosis.
FB induced hypothermia was antagonised by pretreatment with 5HT synthesis inhibitor p-CPA, receptor antagonist methysergide (in low doses) and cyproheptadine (higher dose). In the contrary, l-tryptophen - 5HT precursor and MAO inhibitor alone and along with l-tryptophen potentiated the hypothermic effect. 5HT receptor antagonist methysergide (higher dose) and cyproheptadine (lower dose) potentiated the FB induced hypothermia.

PG synthesis inhibitor, indomethacin pretreatment antagonised the FB hypothermia concomitantly reversed the hypothermia to hyperthermia. Adrenolytic drugs alpha receptor blocker phentolamine and beta receptor antagonist propranolol blocked the FB induced hypothermia. Phentolamine and propranolol not only blocked the FB hypothermia but also revert back the temperature to hyperthermia.

This study, suggest that in chicks both adrenergic as well as serotonergic neurone activity is responsible for the FB induced hypothermia along with prostaglandins.

In chick isolated ileum preparation 5HT, PGE$_1$, Ach and BaCl$_2$ dose dependantly produce contractility on the ileum. PGE$_1$ response was potentiated by 5HT and this potentiation was blocked by prior treatment with cyproheptadine tends to suggest that PGE$_1$-5HT is related some way or other in the gastrointestinal motility is concerned.
To confirm the close association of PGE$_1$ and 5HT in brain and intestine, the effect of PGE$_1$ on tissue 5HT level was studied spectro-fluorometrically. PGE$_1$ pretreatment cause increase in brain and intestine 5HT level. To study the synthesis rate of 5HT after PGE$_1$, 5HT inhibitor pargyline was used on the analogy that K3O inhibitor in the dose used could block the degradation of 5HT completely. The 5HT level after pargyline alone and along with PGE$_1$ showed significant difference. The synthesis rate was calculated following the method of Neff and Tosser, (1968). On calculation, it was observed that PGE$_1$ could increase the brain and intestinal 5HT synthesis rate.

The results after proper evaluation and alongwith the reported literature, it can be suggested that there is close interrelationship between PGE$_1$ and 5HT in hypnosis and gastrointestinal motility and partly the thermoregulation.

In most of the laboratories, the neuro-physio-pharmacological activities are conducted using rats as a laboratory animal. The present study suggested that certain physio-pharmacological activity of chicks bears similarity in the rat. Hence, neuro-physio-pharmacological studies may be conducted in chicks considering its similarities in modulation of neurotransmission.