- INTRODUCTION

To record the dose response curve for histamine on an isolated tissue of guinea pig ileum.

The experiment aims to record the dose-response curve for histamine on an isolated guinea pig ileum to evaluate its pharmacological effects. The ileum is mounted in an organ bath containing physiological solution, and histamine is administered in increasing concentrations. The tissue response is recorded using a transducer, generating a dose-response curve that helps determine histamine's potency and efficacy on smooth muscle contraction.

- EQUIPMENT REQUIRED

Animal :-	Guinea Pig
Drug:-	Histamine stock solution (10 µg /ml)
Instrument:-	Student Organ Bath, kymograph.
Physiological salt solution:-	Thyroid's solution

- PRINCIPLE

Histamine is an autocoid having profound physiological effect in the body. Besides the triple response caused by it, histamine has spasmogenic response response on intestinal smooth muscle. By acting on H1-histamine receptors it causes the contraction of intestinal smooth muscle. Guinea pig is highly sensitive to histamine. The guinea pig ideal preparation is very commonly used for isolated tissue work. It is sensitive to histamine in nanogram/ml concentrations. Mepyramine (pyrilamine) is a selective H1-histamine receptor antagonist.

- PROCEDURE:

1. The guinea pig is sacrificed by a blow on the head.
2. Cut open the abdomen and elevate the caecum to locate the ileocecal junction. Cut and remove a few centimetres of the ileal section, then insert it in the heated watch glass with Tyrode solution.
3. Trim the mesentery and gently clean the contents of the ileum by inserting the Tyrode solution into its lumen. To avoid causing harm to the stomach muscle, extreme caution should be used.
4. Cut the ileum into 2-3 cm-long segments.
5. Tie a thread to the top and bottom ends of 2-3cm of ileum tissue without closing the lumen. Place the tissue in an organ bath with Tyrode solution at 32-33°C and O2 bubbles.
6. A tension of 0.5g is used, and the tissue is allowed to equilibrate for 30 minutes before being added to the organ bath.6.A tension of 0.5g is used, and the tissue is allowed to equilibrate for 30 minutes before being added to the organ bath.

7. Using a frontal lever to record concentration-dependent responses to histamine.
8. Contact time is 30 seconds, and the time cycle is 3 minutes, with a wash period of 60 seconds twice. are preserved to ensure correct recording of responses.
9. Record the dependent reaction owing to histamine.

- CONCLUSION

The dose-response curve for histamine on the isolated guinea pig ileum demonstrates a concentration-dependent increase in smooth muscle contraction. This confirms the presence of histamine H1 receptors in the ileum, which mediate contractile responses. The curve allows for the determination of key pharmacological parameters such as EC_{50} (effective concentration for 50% maximal response) and maximum response. The experiment provides insights into histamine's role in gastrointestinal motility and serves as a model for studying histaminergic drugs and antagonists.

- IDEAL OBSERVATION

Sr. No.	Conc. Of histamine (µg/mL)	Amount Added in Organ bath		Conc. In µg/mL histamine (In organ bath contains 20 ml solution)	Response (in mm)	% Response
		In mL	In µg			
1.	10	0.1	1	0.05	7	16.66
2.	10	0.1	1	0.05	7	16.66
3.	10	0.2	2	0.1	16	38.09
4.	10	0.4	4	0.2	22	52.38
5.	10	0.8	8	0.4	34	80.95
6.	10	1.6	16	0.8	42	100.00
7.	10	3.2	32	1.6	42	100.00

RESULT:

- The results show a dose-dependent contraction of the guinea pig ileum in response to histamine. Higher histamine concentrations produced stronger contractions, generating a sigmoidal dose-response curve.
- The EC_{50} value was determined, indicating histamine's potency. The findings confirm the presence of histamine H1 receptors in the ileum, mediating smooth muscle contraction.

DISCUSSION:

- The experiment confirms the dose-dependent contractile effect of histamine on the guinea pig ileum via H1 receptors, producing a sigmoidal dose-response curve.
- The EC_{50} value indicates histamine's potency, and the maximum response reflects receptor saturation.
- These results support histamine's role in smooth muscle contraction and provide a basis for studying antihistamines and their inhibitory effects.