



DETERMINATION OF ANTISPASMODIC ACTIVITY OF LINSEED OIL USING ISOLATED CHICKEN ILEUM

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ABSTRACT :

Background

Linseed oil was one of the essential oil having antioxidant, anti-inflammatory, immunomodulatory, anticancer, anti-tumour, antimicrobial, anti-inflammatory, analgesic, anti-lipidemic, wound healing, hepatoprotective, cardioprotective, and other protective activities.

Method

The present study used to evaluate the anti-spasmodic effect of linseed oil on isolated chicken ileum by an in vitro pharmacological methods. The spasm was induced by acetylcholine, the spasmogen. Anti-spasmodic activity was assessed by antagonistic method of bioassay on chicken ileum using Modified Tyrode as physiological salt solution.

Result

The antispasmodic activity of linseed oil was evaluated using isolated chicken ileum. The result was found that linseed oil have reduced the spasms induced by acetyl choline.

conclusion

In conclusion, linseed oil have antispasmodic action on chicken ileum.

KEYWORDS: Acetylcholine(Ach), Atropine, Anti-spasmodic, linseed oil(LO), Chicken ileum

INTRODUCTION :

Antispasmodic drugs are used for various pharmacological actions like relieving cramps or spasms in our body. Although most of the available antispasmodic compounds are synthetic or semisynthetic, traditional uses of this group of compounds are still popular.

Flax or linseed, *Linum usitatissimum*, a flowering plant in the family Linaceae. It is cultivated as a food and fiber crop in regions of the world with temperate climates. Its oil is known as linseed oil. [1]

Most types of these basic varieties have similar nutritional characteristics and equal numbers of short-chain omega-3 fatty acids. Flax seeds produce a vegetable oil known as flax seed oil or linseed oil, which is one of the oldest commercial oils.. [2]

Antispasmodic compounds exert their activity in different ways, such as antispasmodic activity through inhibition of neurotransmitters 5-hydroxytryptamine (5-HT) or serotonin and acetylcholine. [7]



Figure 1:linseed oil**MATERIALS AND METHODS :*****Procurement of Chicken Intestine***

Fresh entire gastro intestinal tract of healthy chicken obtained from slaughter house and ileum is cut

Drugs and Chemicals

Acetylcholine, Atropine, Sodium chloride, Potassium chloride, Calcium chloride, Magnesium chloride, Sodium bicarbonate and glucose.

Anti-Spasmotic Activity***Acetylcholine induced contraction of chicken ileum preparation (In vitro assay)***

The fresh intestine of a healthy chicken was procured from nearby butcher and washed with Modified Tyrode solution to remove the dirt particles. The caecum was lifted forward and the ileocaecal junction was identified and cut at this point. Modified tyrod solution was passed through the intestine to remove the intestinal attachment such as blood vessels, fats and intestinal content, this was again cut into small pieces of 2cm length. The tissue was aerated using a mixture of 95% oxygen and 5% carbon di-oxide with an aerator maintained at 37°C.

^{9/} For recording each response, a drum speed of 0.25 rpm, contact time of 60 sec, baseline of 30 sec, and a 5-minute time cycle were followed. The dose-dependent responses of acetylcholine were recorded initially on kymograph paper. Followed to which the dose response curves were recorded for acetylcholine in presence of linseed oil (1 mg/ml), the test drug and atropine sulphate (1 mg/ml), a standard drug with Sherrington's rotating drum. By comparing the dose with the height of the response from the curve, the percentage decrease in response to the extract and atropine sulphate was calculated and graphed.^{16]}

figure 2: linseed oil**RESULT AND DISCUSSION :*****Evaluation of antispasmodic activity***

Dose response relationship observation of acetylcholine, linseed oil and atropine on chicken ileum

DRUG	DOSE	PERCENTAGE RESPONSE
Acetyl choline ⁹	0.1	40%
	0.2	60%
	0.4	73.3%
	0.8	100%
Acetyl choline +atropine	0.1+0.1	12.5%

	0.2+0.1	25%
	0.4+0.1	37.5%
	0.8+0.1	50%
Acetyl choline+linseed oil	0.1+0.1	26.6%
	0.2+0.1	40%
	0.4+0.1	53.3%
	0.8+0.1	66.66%

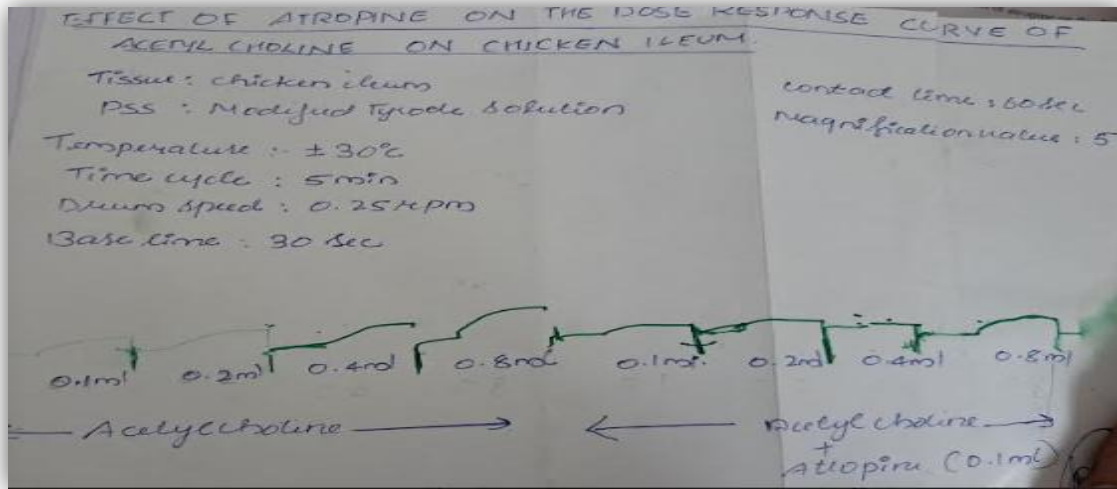


Fig. 3: Dose response curve of Ach and Atropine.

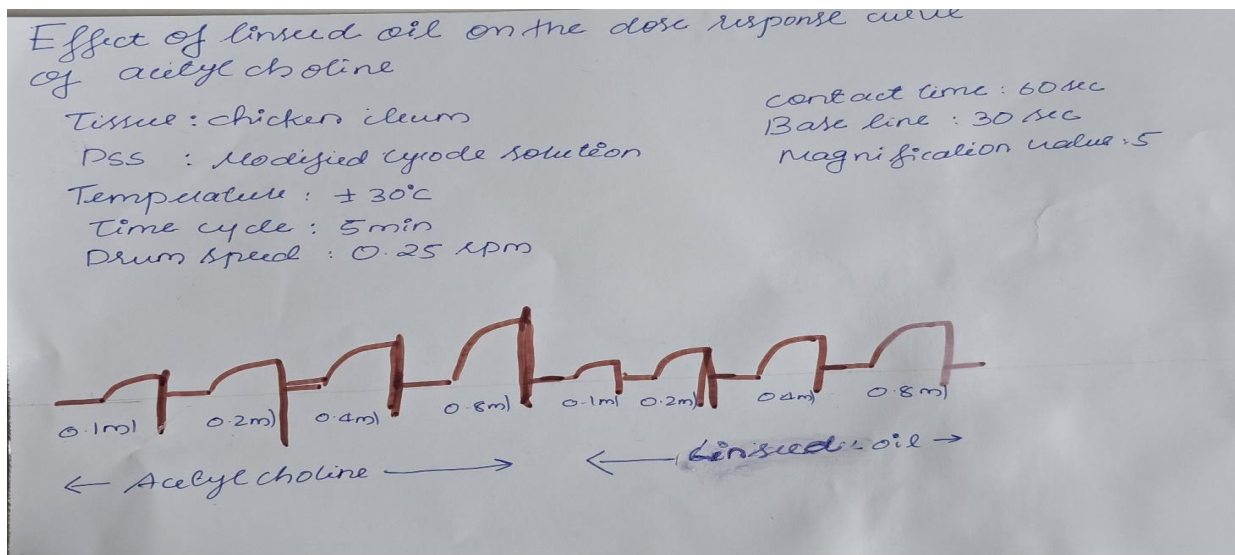
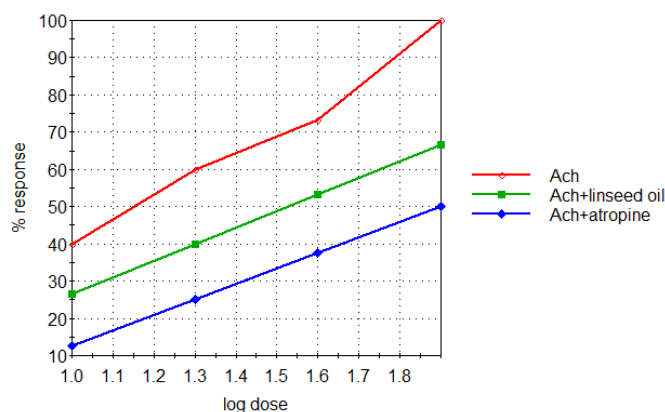


Fig. 4: Response curve of Ach+ linseed oil.

effect of LO on DRC of Ach & atropine on chicken ileum**Figure 5 :effect of linseed oil an DRC of acetylcholine on chicken ileum****DISCUSSION :**

Evaluation of antispasmodic activity here we use linseed oil. various article shows the antispasmodic activity of essential oils this study enumerates the anti spasmotic activity of linseed oil which is an essential oil.

Here the dose response curve was drawn using acetyl choline as standard drug. Acetyl choline and linseed effect was recorded using isolated chicken ileum and compared with acetyl choline and atropine, which is an antispasmodic agent.

The DRC plotted shows that linseed oil shows reduced contraction than that of acetylcholine and have similar action as that of atropine. Thus this study evidence that linseed oil have anti spasmotic activity

CONCLUSION :

The study can be concluded that linseed oil have antispasmodic activity. This may be due to its muscarinic receptor blockage in smooth muscles of isolated chicken ileum.

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