



IJSRM

INTERNATIONAL JOURNAL OF SCIENCE AND RESEARCH METHODOLOGY

An Official Publication of Human Journals



Human Journals

Research Article

August 2021 Vol.:19, Issue:2

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Evaluation of Skeletal Muscle Activity of *Capsicum annuum* Seed's Extract on Isolated Frog's Rectus Abdominus Muscle



IJSRM
INTERNATIONAL JOURNAL OF SCIENCE AND RESEARCH METHODOLOGY
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Submitted: 22 July 2021
Accepted: 29 July 2021
Published: 30 August 2021

Keywords: *Skeletal muscle activity, Capsicum annuum seeds, Rana hexadactyla, Acetylcholine*

ABSTRACT

Skeletal muscle activity of *Capsicum annuum* seed's extract was studied in the green frog (*Rana hexadactyla*) by the rectus abdominus muscle preparation. *Capsicum annuum* seed's extract with distilled water 1µg/ml, 10µg/ml and 100µg/ml concentrations. The result indicated that the treatment of *Capsicum annuum* seed's extract alone and combination with acetylcholine produce skeletal muscle activity. Thus, from the present study, it was concluded that *Capsicum annuum* seed's extract have good skeletal muscle activity alone and in combination with Acetylcholine.



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INTRODUCTION

Capsicum is an annual herb that antihyperglycemic activity. Other pharmacological properties such as anti inflammatory, antioxidant, anti microbial, antiviral, hypotensive, and hypercholesterolemia are also exhibited. Recently, there is a rising demand for herbal drugs because they have shown beneficial effects in the treatment of variety of disorders such as metabolic syndrome. Some of these plants and their active constituents include *Vitis vinifera*, *Nigella sativa*, *Allium sativum*, *Rosmarinus officinalis*, *Persea americana*, *Berberis vulgaris*, cinnamon, thymoquinone, rutin, *Crocus sativus*, *Garcinia mangostana*. [1-2].

Recent research was done on the plant extracts by using animal model shows good medicinal significance alone and in combination with allopathic drugs. So here I plan to evaluate the effect of capsicum seeds extract on skeletal muscle contraction by using the isolated Frog rectus abdominus muscle preparation.[3-9]

RESEARCH ELABORATION

COLLECTION OF PLANT MATERIAL & PREPARATION OF PLANT EXTRACT:

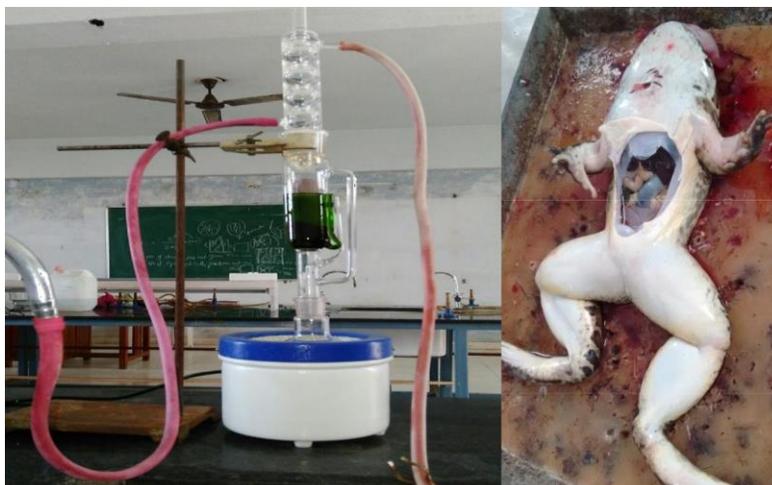
Purified capsicum seeds were obtained from local area.

Preparation of plant extract:

500gm of Capsicum seeds were obtained and washed. The collected seeds were dried at room temperature, pulverized by a mechanical grinder, sieved through 60 mesh and was soxhalates with 70% methanol for 48 hours, concentrated to dryness in vacuum and weighed.[10]



CAPSICUM SEEDS



SOXHLET APPARATUS AND FROG DISSECTION



CAPSICUM SEED'S EXTRACT

EFFECT OF *CAPSICUM ANNUUM SEED'S* EXTRACT (CFE) ON THE SKELETAL MUSCLE OF THE FROG

This experiment was attempted to assess the effect of Hibiscus leaves extracts on the frog rectus abdominis muscle preparation. The experiment was carried as per method described by Kulkarni (The textbook of experimental pharmacology).

Frogs weighing 20-25 gm were used in this study. The frog was stunned and decapitated and the spinal cord was destroyed. A frog was pithed and the skin of the anterior and abdominal wall was cut by a midline incision and then it was cut laterally to expose the anterior abdominal wall. The two rectus muscle were seen running from the base of sternum. The muscles were cut across just above the sternum at its base and the pair of muscles attached to it were dissected and transferred to a dish containing frog ringer solution at room temperature. The muscles were then carefully

cleaned and one of them was trimmed to the desired size and mounted in an organ bath filled with ringer solution at room temperature and aerated by stream of fine bubbles emerging near the bottom of the bath. Isotonic contractions were recorded using gimbel lever with a sideways writing point. The lever was balanced for a tension of approximately 2-5 gm. An extra load of approximately 1gm on the long arm was supplied because sometimes the lever may not return to the baseline after washing. The drug period allowed for stabilization was 30 min during which the muscle was subjected to 1gm stretch. At 0th min – the kymograph was started after raising the extra load; in the 1st min –the drug was added and in the 2nd min - the kymograph was stopped. The tissue was washed and allowed to relax by applying an extra load. At the 5th min- the lever point was brought to the baseline and the next cycle was started. After recording the graded responses to different long dose of acetylcholine, the CSE was added and their effect upon acetylcholine induced contraction as well as the effect of its own in the tissue was studied.

RESULTS OR FINDING

Table No. 1: Skeletal muscle activity of Acetylcholine, d-tubocuraine, CSE-Capsicum Annum Seed’s Extract, Acetylcholine+CSE

S.N O	DRUG	DOSE (µg/ml)	HEIGHT (mm)	RESPONSE
1	Acetylcholine	1	3	Increased
2	Acetylcholine	2	6	Increased
3	Acetylcholine	4	8	Increased
4	Acetylcholine	8	9	Increased
5	Acetylcholine	16	11	Increased
6	d-tubocuraine	4	-	-
7	CSE	1	3	Increased
8	CSE	10	8	Increased
9	CSE	100	10	Increased
13	Acetylcholine + CSE	1 1	6	Increased
14	Acetylcholine + CSE	1 10	10	Increased
15	Acetylcholine + CSE	1 100	12	Increased

The *Capsicum annuum* seed's Extract was found to have skeletal muscle activity with the concentration of 1µg/ml, 10µg/ml, and 100µg/ml.

When the activity was compared between the standard drug i.e, Acetylcholine and test drugs *Capsicum annuum* seed's Extract. The activity of the standard drug is more compare to test drugs and it is above reach with the standard drug.

The skeletal muscle activity was evaluated first by the acetylcholine of different doses like 1µg/ml, 2µg/ml, 4µg/ml, 8µg/ml and 16µg/ml and with d-tubocuraine of dose about 4µg/ml. The acetylcholine were activity by increasing the dose response whereas, the drug d-tubocuraine has shown no effect and no action it neither contraction nor depolarization because it inhibits muscular contraction by the application of acetylcholine.

Then skeletal muscle activity is evaluated by using test drugs *Capsicum annuum* Seed's Extract of using different doses like 1ug/ml, 10ug/ml and 100ug/ml. For both the test drugs the response have been increased.

Thus, the present investigation proves that *Capsicum annuum* Seed's Extract were have good skeletal muscle activity alone and combination with acetylcholine and it produces significant skeletal muscle activity at high concentration.

CONCLUSION

The *Capsicum annuum* Seed's Extract was found to good skeletal muscle activity with different concentrations. When the activity was compared between the standard drug i.e, acetylcholine and test drugs *Capsicum annuum* Seed's Extract. The activity of the standard drug is more compare to test drugs.

The skeletal muscle activity is evaluated by using test drugs Hibiscus leaves extract of using different doses like 1 g/ml, 10 g/ml and 100 g/ml. for both the tests drugs the response have been increased. The effect of acetylcholine and *Capsicum annuum* Seed's Extract (CSE) were compared and the results show the more active response with the acetylcholine rather than the *Capsicum annuum* Seed's Extract (CSE).

This study finally concluded that the effect of *Capsicum annuum* Seed's Extract (CSE) and combination of *Capsicum annuum* Seed's Extract (CSE) and acetylcholine were shown good skeletal muscle activity.

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