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Acetylcholine Antagonistic action of Aqueous Extract of *Orthosiphon Thymiflorus*

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Effects of an aqueous extract of *Orthosiphon thymiflorus* (AEO) on acetylcholine-induced contractions of isolated frog rectus abdominis muscle were studied. AEO produced significant inhibitory effect on the skeletal muscle contraction which may be due to inhibition of the effect of acetylcholine at the receptor site.

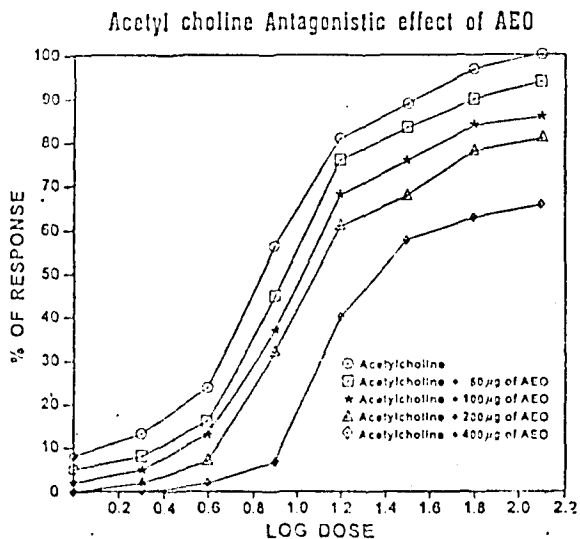
DIFFERENT *Orthosiphon* aqueous extracts have been reported to be diuretic¹⁻⁴ and anti-inflammatory⁵⁻⁶. The present study focused on nicotinic antagonistic action of aqueous extract of *Orthosiphon thymiflorus*⁷ on isolated skeletal muscle preparation of frog. *Orthosiphon thymiflorus* was collected from Tirunelveli district of Tamil Nadu and confirmed in Central Siddha Research Unit, Tirunelveli, Tamil Nadu and found to comply with all specifications. The aqueous extract was obtained by macerating 5 kg of whole plant of *Orthosiphon thymiflorus* with 50 l of boiling water. The filtrate was reduced to about 4 l *in vacuo* at about 35° and freeze dried afterwards. The yield was about 750 g of freeze dried extract (17%).

Isolated frog-rectus abdominis muscle was mounted in frog-Ringer solution at room temperature.

The dose-response curves of acetylcholine HCl were obtained as described by Ghosh (1984)⁸. The experiment was repeated in the presence of aqueous extract of *Orthosiphon thymiflorus*, added in the reservoir at varying doses (50, 100, 200 and 400 µg/ml respectively). The average of five determinations was computed.

Aqueous extract of *Orthosiphon thymiflorus* in all the doses tested, produced significant dose-dependent inhibition of contraction by acetylcholine. The result (Figure -1) clearly shows that the aqueous extract of *O. thymiflorus* blocks the nicotinic action of acetylcholine that regulate the flow of ions through plasma membrane channels⁹. Acetylcholine causes the opening of an ion channel in the nicotinic acetylcholine receptor, which allows Na⁺ to diffuse down

Acetyl choline Antagonistic effect of AEO



its concentration gradient into cells, producing a localised excitatory post synaptic potential leading to depolarisation and excitation¹⁰.

The significant antagonistic action of AEO may be due to blockade of the receptor and thus preventing the entry of ions during depolarisation of skeletal muscle by acetylcholine.

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