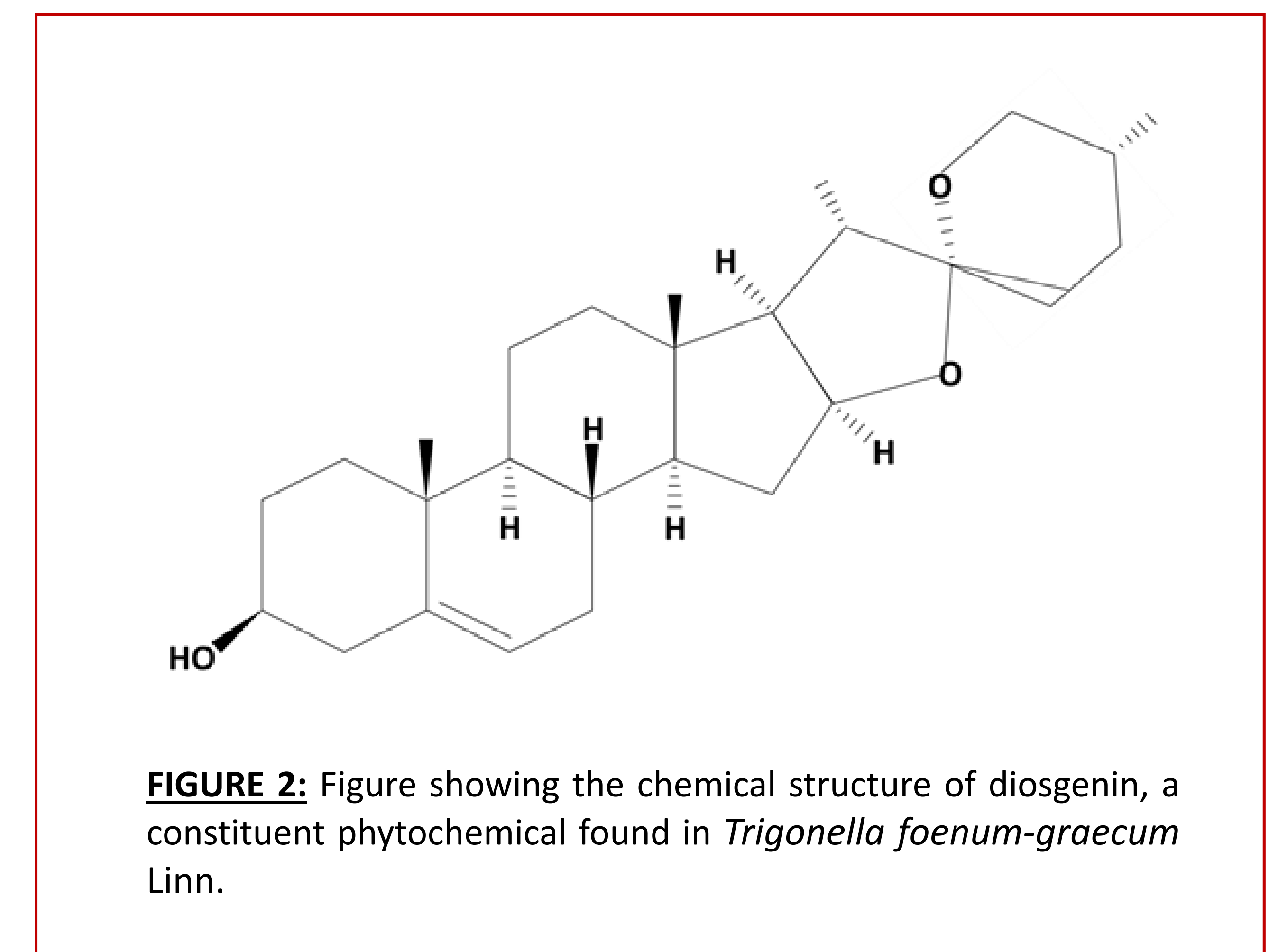
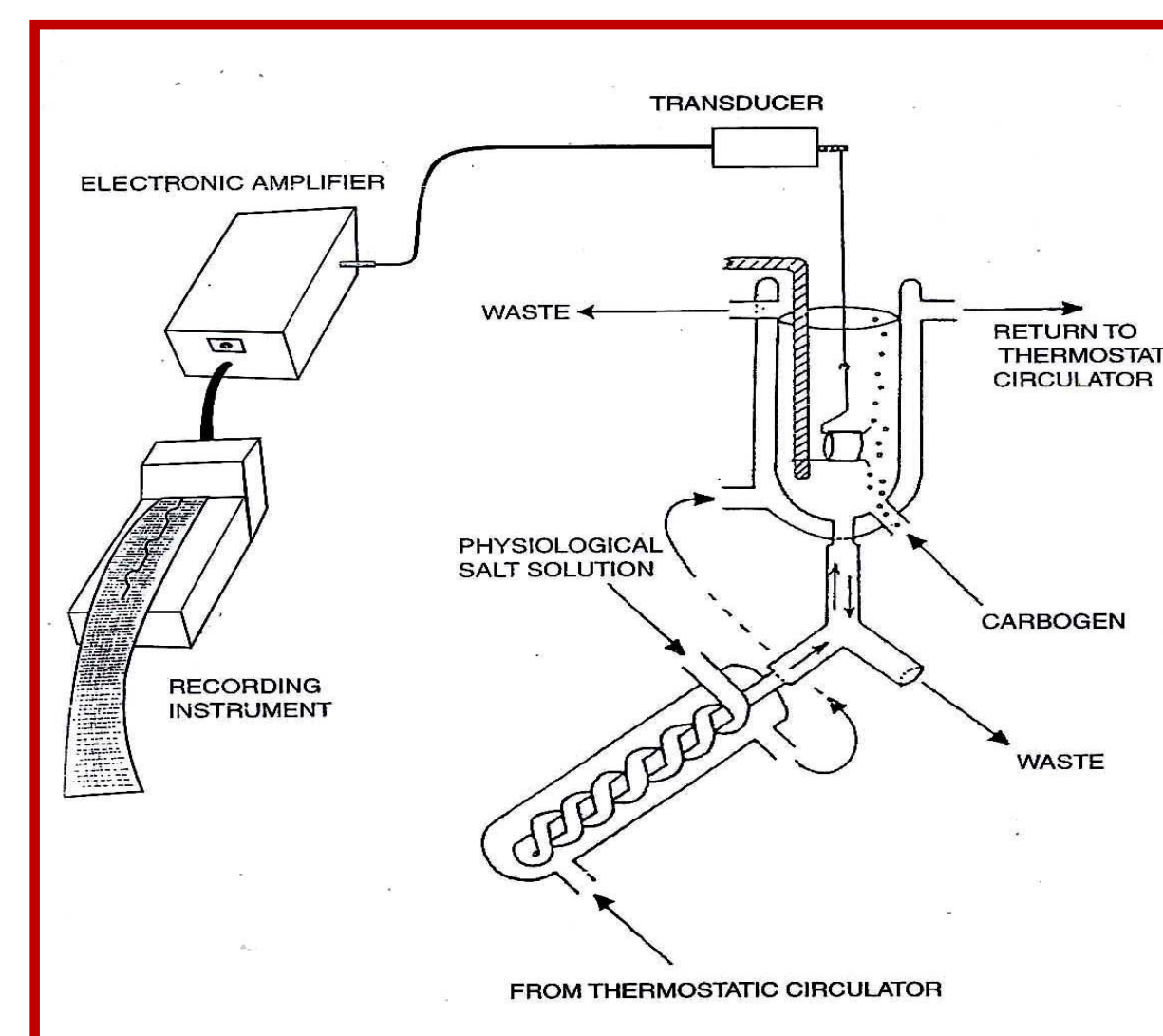


# Trigonella foenum-graecum Extract on Isolated Smooth Muscles & Acetylcholinesterase Enzyme



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**FIGURE 2:** Figure showing the chemical structure of diosgenin, a constituent phytochemical found in *Trigonella foenum-graecum* Linn.

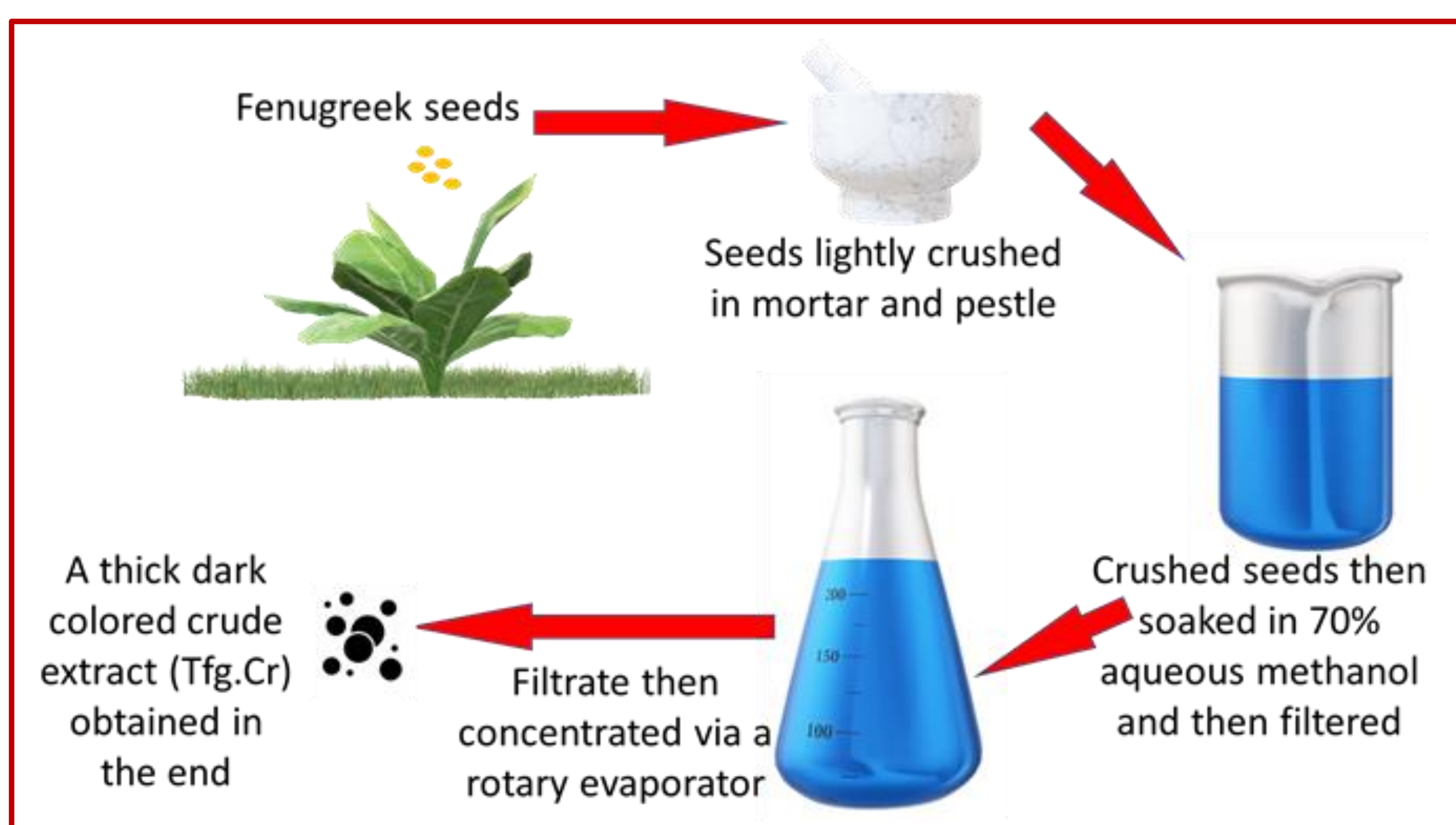
## Background & Objective

*Trigonella foenum-graecum* Linn. (Fabaceae; common name fenugreek) is a medicinal plant known all over the world for its medicinal properties. It is regarded by traditional healers in South Asia for its gastrointestinal (GI) benefits and memory enhancing properties. In this report, we present the effect of fenugreek seed extract on isolated GI smooth muscles and in vitro acetylcholinesterase (AChE) enzyme.

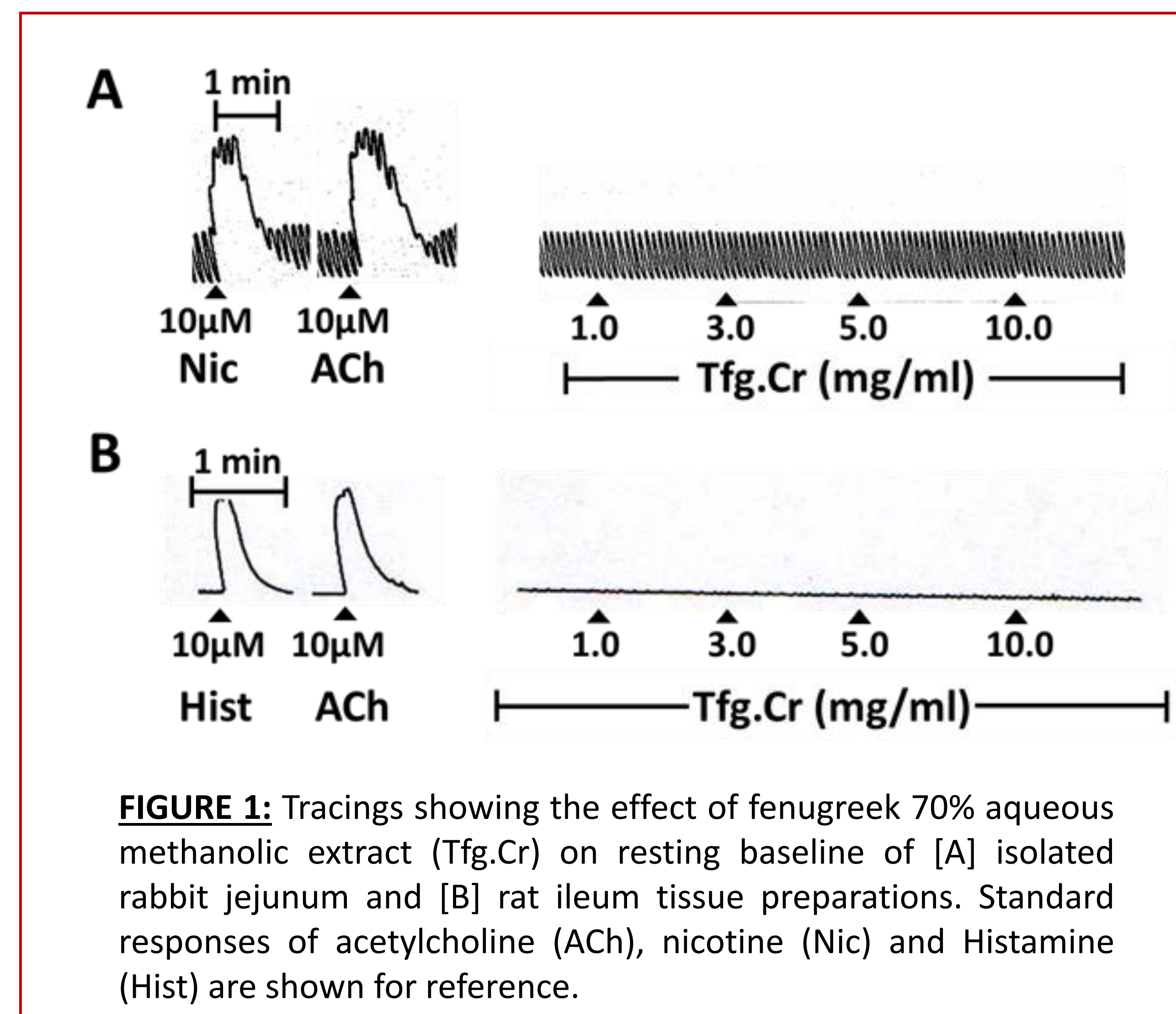
**ACh Synthesis and Degradation:**  
**ChAT**  
**Acetyl CoA + choline =====> acetylcholine + CoA**  
**AChE**  
**Acetylcholine <=====> choline + acetate**  
  
**Assay:**  
**AChE**  
**Acetylthiocholine iodide =====> thiocholine + acetate**  
**Thiocholine + DTNB=====> yellow products (412 nm)**

## Methodology

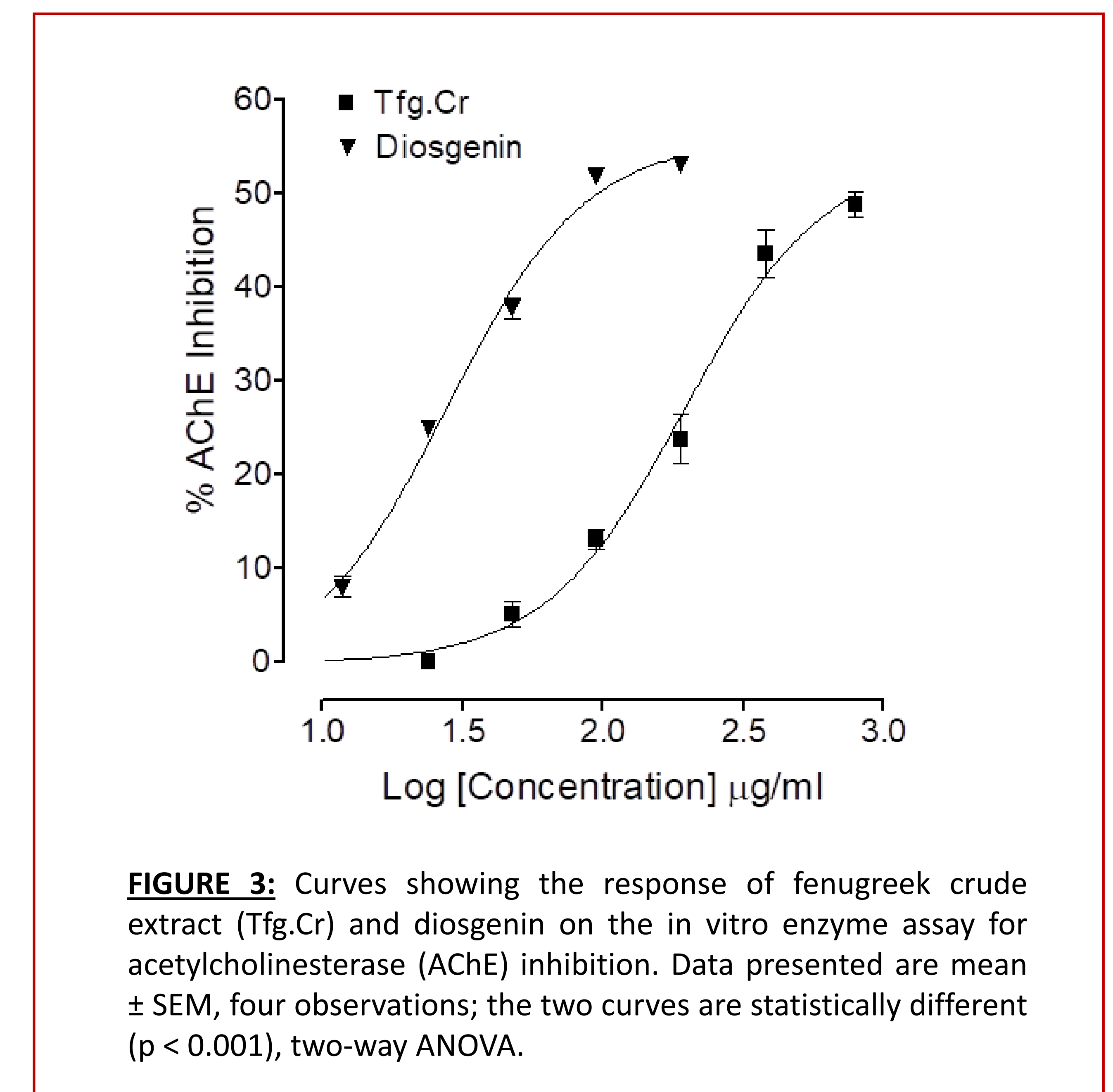
Fenugreek seeds were soaked in 70% aqueous methanol. The filtrate was collected, and then concentrated in an evaporator. A thick extract (Tfg.Cr) was obtained. This extract was tested on isolated tissue preparations of jejunum and ileum obtained from rabbits and rats respectively. Isolated tissues were mounted in tissue baths with physiological salt solution.



## Results



**FIGURE 1:** Tracings showing the effect of fenugreek 70% aqueous methanolic extract (Tfg.Cr) on resting baseline of [A] isolated rabbit jejunum and [B] rat ileum tissue preparations. Standard responses of acetylcholine (ACh), nicotine (Nic) and Histamine (Hist) are shown for reference.



**FIGURE 3:** Curves showing the response of fenugreek crude extract (Tfg.Cr) and diosgenin on the in vitro enzyme assay for acetylcholinesterase (AChE) inhibition. Data presented are mean ± SEM, four observations; the two curves are statistically different (p < 0.001), two-way ANOVA.

## Conclusion

The results showed that fenugreek extract does not possess any GI stimulant or relaxant activity although it did inhibit the AChE enzyme pointing towards its potential for memory enhancement. This activity was also noted from diosgenin, a phytochemical from this plant.