

# CLINICAL EFFICACY OF L-THEANINE TABLETS TO REDUCE ANXIETY-RELATED EMOTIONAL DISORDERS IN CATS: A PILOT OPEN-LABEL CLINICAL TRIAL

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## BACKGROUND

L-theanine ( $\gamma$ -ethylamino-L-glutamic acid) is a structural analogue of glutamate that is absorbed in the gut and can cross the blood-brain barrier. L-theanine binds to glutamate receptors, thereby countering the stimulatory activity of this excitatory neurotransmitter in the brain.

In humans, L-theanine promotes mental and physical relaxation, and reduces stress and anxiety without causing drowsiness. Forty minutes after the absorption of L-theanine, alpha waves (indicative of a relaxed and calm state) begin to appear on the electroencephalogram around the occipital regions. The amplitude of the alpha-waves are dose-dependent. Subjects report a relaxed feeling.

## OBJECTIVES

The present study evaluates whether a veterinary L-theanine based nutritional supplement ANXITANE® (L-Theanine) Chewable Tablets can attenuate symptoms of anxiety in cats under field conditions.

## MATERIALS & METHODS

### Animals:

- 33 cats, gender: 14 females / 19 males, age: 5 months to 16 years, size: 2 to 10 kg, breeds: 29 Europeans, 2 Persians, 1 Siamese, 1 Somali.
- Inclusion criteria: occurrence for at least one month of one or more of the following manifestations of anxiety: inappropriate urination / defecation, aggressiveness (from fear), hypervigilance / tenseness, inhibition, cohabitation problems, fear of humans, physical manifestations of anxiety (digestive problems, hypersalivation, body licking, bulimia).
- Exclusion criteria: life-threatening disease, use of psychotropic drugs or pheromones in the preceding week.

### Treatment:

- Half a 50mg L-theanine tablet (ANXITANE® S Tablets) BID for 1 month
- No other behaviour treatment.
- Unrestricted access to food.
- Litter changed every week.

### Concurrent medications:

- None (32 cases).
- Fipronil spot-on, milbemycine oxyme tablet (1 case).

### Evaluation:

- Clinical & behavioural evaluation before (D0), during (D15) and after treatment (D30).
- 20-item grid of autonomic, behavioural, emotional & physical signs of anxiety (table 2). Each symptom graded 0-3 according to intensity. All 20 scores added together to calculate the **global clinical score of anxiety**.
- Perceived improvement of dominant problem(s) as estimated subjectively by investigators (relative % severity scale: baseline being rated 100% = reference pre-treatment state).
- Owner satisfaction on treatment outcome and tablet palatability.



## RESULTS

Table 1. History of the cats in relation to anxiety at baseline (D0)

History	Breakdown (number of cats)
Age at adoption	≤ 2.5 months (17), 3-8 months (11), > 8 months (5)
Origin	found in street (11), relatives (11), cattery (7), other (4)
Dominant signs of anxiety (several possible /cat)	hypervigilance/tenseness/fears (26), inappropriate urination/defecation (15), aggressiveness (8), organic manifestations (7)
Age at onset of signs	< 8 months (13), 8 months-3 years (13), > 3 years (7)
Evolution of signs	improving slowly (1), steady (15), aggravating (14)
Associated signs	hyperactivity (4), recurrent cystitis (2), panic reactions (1), sleep disturbance (1), rolling skin syndrome (1), clothe sucking (2), obesity (5), constipation (1), gingivitis (1)

Table 2. Items used for scoring manifestations of anxiety in cats

Category	Items scored according to severity
Neurovegetative signs	polypnea, shivering, mydriasis, piloerection, rolling skin, vomiting, diarrhea, hypersalivation, fear-induced urination or defecation
Behavioural signs	meowing, excessive demands for attention, threats (hiss) or even bites because of irritation (when patted or while playing with the owner), threats (hiss) or even attacks when surprised or because of fear, aggression redirected against people / objects / furniture / tail, avoidance behaviour
Emotional state and associated postures	inhibition with flattened ears / tendency to crouch, agitation, hypervigilance and hyperaesthesia, tendency to panic / run away or hide, inhibition with licking / stereotypical behaviour

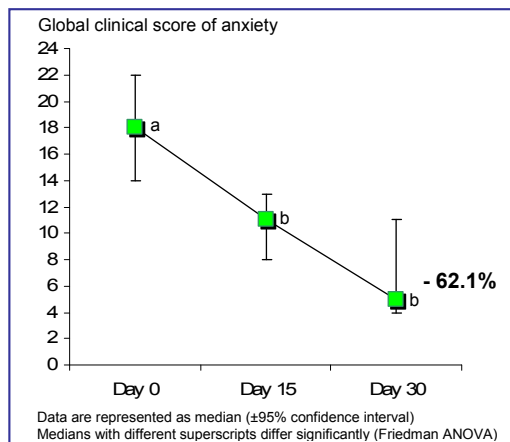


Figure 1. Global clinical score of anxiety during treatment

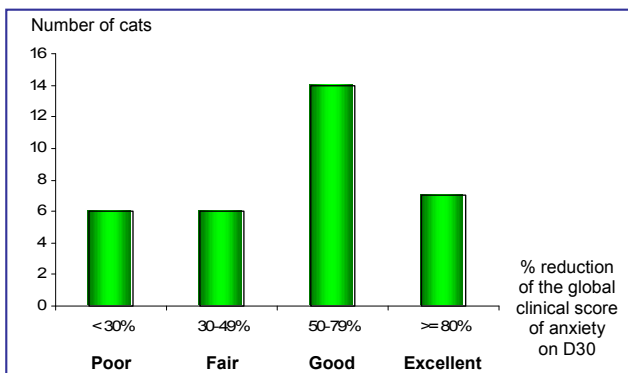


Figure 2. Breakdown of the response to treatment after 1 month

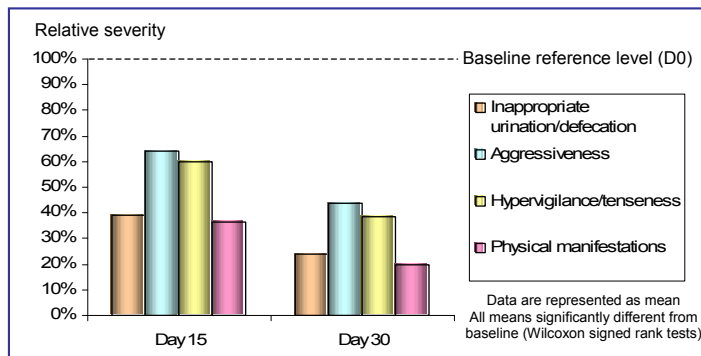


Figure 3. Relative rating by investigators of the severity of the major manifestations of anxiety as compared to pre-treatment condition

## CONCLUSIONS

This clinical trial points up the value of L-theanine supplementation to mitigate symptoms of anxiety in cats.

The magnitude of effects as measured by scores place the efficacy of the supplement beyond the typical response seen with placebo.

L-theanine seemed particularly effective on organic manifestations of anxiety and cohabitation problems in cats.