CONFERENCE PROCEEDING

Study on the effect of *Acalypha indica* L. roots application in cat feed

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ABSTRACT

Acalypha indica L. roots contain active substances that can attract cats and affect cat behavior. The object was to study the effects of *Acalypha indica* L. roots application in cat feed as a flavoring agent, by using *Acalypha indica* L. roots as a crude extract and dry root meal form in 11 adult cats aged 2-6 years. 3 formulas of complementary cat feed were prepared for experimentation: control feed, feed supplemented with dry root crude extracts, and dry *Acalypha indica* L. roots meal supplement. Experiment with 3 formulas of feed and leave the cat free to experiment with feed choices. Record the duration of access feed, feed choice, the amount taken, and the behavior when accessing food. Results, cats fed the feed supplemented with dry *Acalypha indica* L. roots crude extracts accounted for 45.4%, and those fed the feed supplemented with dry *Acalypha indica* L. root meal accounted for 36.4% more than those feds the control feed at only 18.6%. It was concluded that dry *Acalypha indica* L. root supplements in cat feed can increase cats' interest in feed and the application of cat nettle root in cat feed should apply cat nettle root as a root meal form.

Keywords: *Acalypha indica L. root, attract cats, cat feed*

INTRODUCTION

Acalypha indica L. is a plant of the family Euphorbiaceae, a common weed in tropical areas including Thailand. The root of *Acalypha indica* has properties to attract cats and affect cat behavior due to there being 2 volatile iridoid compounds, isoiridomyrmecin and isodihydronepetalactone. The effects of the active ingredient in *Acalypha indica* roots have not been much researched. There is a plant that has a similar effect on cats like *Acalypha indica* is Catnip (*Nepeta cataria*), it is a plant native to Europe, and the active ingredient in catnip is Nepetalactone. Is an active ingredient in iridoids such as *Acalypha indica*. Nepetalactone acts in the same way as a pheromone, can help cats adjust to their surroundings faster, reduces stress during a veterinary examination, and reduces stress for cats hospitalized due to Pheromones can increase cats' interest in feed. (Kamonphan, 2016). From existing research was found that *Acalypha indica* L. roots can attract cats. Therefore, this study is a pilot study on the effects of *Acalypha indica* roots by application as a flavoring agent in cat feed. Cat nettle root has not been studied and applied in cat feed before. The author conducted a study by applying cat nettle root in dry root meal and dry root crude extract form.

METHODOLOGY

Preparation of *Acalypha indica* L. root in crude extract form and root meal form

Rinse *Acalypha indica* L. roots to remove any soil, dry and cut off part of the trunk using only root, and divide the root into 2 parts.

Part 1: Cut the root into small pieces, soaked in 95% ethanol, a ratio of 1:10 g/ml for 5 days, and then filtered with a filter cloth. Evaporated by the rotary evaporator at 45-50 °C and soaked in the water bath at 50 °C until ethanol was evaporated.

Part 2: Dry the roots in a hot air oven at 60-70 °C until dry, and crush with a fine grinder.

Feed preparation

The experimental recipe adapted from the research of Donadelli and Aldrich (2020), switched their ingredients to ingredients readily available locally and changed feed composition from dry feed to wet feed and made 3 recipes for experimentation, control feed, *Acalypha indica* dry root meal supplement and *Acalypha indica* dry root crude extract supplement in cat feed.

First, boil the broken rice. The ratio of broken rice is 1:5g/ml of water until looks like porridge then mixed with the rest of the above ingredients as in Table 1 by using a blender. Then divided into retort pouches of 50 g. Sterilize with an autoclave at 90 °C for 15 minutes. Take part in nutritional value analysis according to AOAC 1990 method, and check for *Bacillus cereus* and *Clostridium perfringents* according to ISO16140-2-2016. Using Bam Chapter 14 by Tallent, et al. (2020) and BAM Chapter 16 by Rhodehamel, et al. (2001) respectively, before the experiment.

Table 1: Ingredient composition of experimental feed

Ingredient (%)	Experimental feed formulas		
	Control	Dry root meal	Crude extract
Chicken	40.0	39.21	39.21
Broken rice	29.7	29.11	29.11
Corn meal	14.7	14.41	14.41
Wheat gluten	5.0	4.9	4.9
Fishbone meal	0.5	0.49	0.49
Vegetable oil	9.0	8.82	8.82
Salt	0.2	0.19	0.19
Brewers yeast	0.4	0.39	0.39
Fish oil	0.4	0.39	0.39
Taurine	0.1	0.09	0.09
Crude extract	-	-	1.96
Root meal	-	1.96	-
Total	100	100	100

Experimental cats and experimental methods

The 11 mixed-breed cats, mixed-gender 2-6 years were trial. Carried out at the cat owner's house. bring 3 formulas of feed into 3 bowls that have the same color and shape for feeding cats. Leaving the cat free to feed the experimental feed then record

the duration of access feed, feed choice, the amount taken, and the behavior when accessing food.

RESULTS AND DISCUSSION

Pathogenic microorganisms in the 3 formulas of feed

Not found *Bacillus cereus* and *Clostridium perfringents* in the experimental feed, the cat was able to eat. as these bacteria can produce toxins that can result in food poisoning.

Nutritional values were analyzed in the 3 formulas of feed (Table 2)

The experimental feed in a 50g retort pouch showed the nutritional values as shown in Table2. Nutrient requirements for cat feed are determined by FEDIAF2012; minimum recommended nutrient levels for cats-unit per 100g dry matter are protein 25g and fat 9g. The experimental feed is a cat feed that is not fully nutrition, is a Complementary pet feed according Animal Feed Quality Control Act B.E.2558

Table 2: Nutritional values in the 3 formulas of feed

Composition (g)	Experimental feed formulas		
	Control	dry root meal	crude extract
protein	3.12	3.48	2.87
fat	1.14	1.23	1.03
fiber	0.12	0.17	0.12
moisture	38.46	38.87	39.83

The effect of cat feed on the 11 cats (Table 3)

The number of cats fed *Acalypha indica* L. roots fortified feed was higher than cats fed control feed. And the feed fortified *Acalypha indica* L. roots were fortified with crude extract and dry root meal, found the feed fortified crude extract was more favored by cats than the feed fortified with only 1 cat. The duration of access feed of experimental cats is 0.02-1.01 minutes and feeding behavior was to sniff and then fed only one of the formula feeds, none of the experimental cats were fed more than 1 formula.

Table 3: Food intake of the 11 experimental cats

Formulas feed	Summary (head)	Percentage %	Feed intake (g/Head)
Control	2	18.2%	31
crude extract	5	45.4%	29.2
dry root meal	4	36.4%	38.75

CONCLUSION

The effects of *Acalypha indica* L. roots application in cat feed as flavoring agents can increase cats' interest in feed. The application of *Acalypha indica* L. roots in cat feed should be applied in the dry root meal form, which has dried at 60-70 °C and finely ground due to cats being fed not much difference as using *Acalypha indica* L. roots in crude extract form and also saves the cost of extracting cat nettle root.

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