

THE EFFECT OF ETHANOL  
EXTRACT AND ETYLASETATE  
FRACTION OF ARECA SEEDS  
(Areca catechu L.) ON THE  
THICKNESS OF THE COLONIC  
TUNICA MUSCULARIS IN MICE  
(Mus musculus) FEEDDED  
TRICHURIS MURIS INFECTIVE

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**THE EFFECT OF ETHANOL EXTRACT AND ETHYLACETATE FRACTION OF ARECA SEEDS (*Areca catechu* L.) ON THE THICKNESS OF THE COLONIC TUNICA MUSCULARIS IN MICE (*Mus musculus*) FEEDED *TRICHURIS MURIS* INFECTIVE EGGS PERORAL**

Endy Juli Anto<sup>1</sup>

<sup>1</sup>Department of Parasitology, Faculty of Medicine, Universitas Methodist Indonesia

\*Corresponding author: [dr.endyjulianto86@gmail.com](mailto:dr.endyjulianto86@gmail.com)

**ABSTRACT**

*Trichuris trichiura* (T. trichiura) is a soil-transmitted helminths that is commonly found in humid, tropical and subtropical areas with poor sanitation. One species of worm *Trichuris trichiura* that is often used in research on experimental animals is *Trichuris muris*. Administration of T. muris infective eggs can significantly increase the thickness of the tunica muscularis of the colon. This thickening of the tunica muscularis intestine is associated with increased contractility of smooth muscle cells lining the intestinal wall. Increased contractility is one of the important mechanisms in expulsion of gastrointestinal parasites. In recent years, various researches on the development of natural and traditional ingredients have been developed to see the effect of areca seeds on the number of goblet cells in the large intestine. The purpose of this study was to determine the effect of ethanol extract and ethylacetate fraction of areca seeds on changes in the thickness of the tunica muscularis colon in male mice fed T. muris infective eggs orally. This research is a quasi-experimental study with post-test only control group design on male (*Mus musculus*) mice given 200 infective eggs of T. muris. The sample of this study amounted to 70 mice divided into 7 groups: (1) negative control (normal); (2) induction of 200 T. Muris infective eggs (positive control); (3) induction of 200 infective eggs of T. Muris and ethanol extract of areca nut p.o. (orally) 100 mg/kgbw (P1); (4) induction of 200 infective eggs of T. Muris and ethanol extract of areca nut, p.o. 150 mg/kg body weight (P2); (5) induction of 200 infective eggs of T. Muris and the ethylacetate fraction of areca nut p.o. 100 mg/kg body weight (P3); (6) induction of 200 infective eggs of T. Muris and ethylacetate fraction of areca nut, p.o. 150 mg/kg body weight (P4); (7) induction of 200 infective eggs of T. Muris and Albendazole p.o. 1mg/20g (P5). The mean differences in the groups were analyzed by the Kruskal Wallis Test method. The results of statistical analysis showed an increase in the thickness of the tunica muscularis colon in the positive control (Mean=1008.39; SD=2454.35) compared to the negative control (Mean=666.16; SD=185.53). The thickness of the tunica muscularis colon in group P1 (Mean=237.34; SD=70.48), group P2 (Mean=216.33; SD=63.08), group P3 (Mean=373.30; SD=46.36), group P4 (Mean=339.69; SD=141.97) and group P5 (Mean=361.26; SD=51.77). Pairwise statistical significance (p value) between all groups was p<0.001. Areca nut ethanol extract 150 mg/kgbw can effectively reduce the thickness of the tunica mucosa of the colon.

**Keywords:** areca catechu L., colon, mice, mus musculus, trichuris muris, tunica muscularis

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