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## Novel Anthelmintic Development based on Ethno-Religious Knowledge: The Evidence for Datepalm Fruit and Goat's Milk

Novel alternative anthelmintic compounds are urgently needed due to the development of resistance. Researchers screened many natural plant based products based on ethno medical knowledge. Ethno-religious knowledge from sacred texts is rarely sourced as credible resources. The purpose of this study is to investigate the potential anthelmintic property of certain foods mentioned in Islamic texts like the Quran and prophetic traditions. Date palm fruit and caprine milk were the most important foods mentioned in Islamic sacred texts. Anthelmintic activity assessments were conducted in vitro and in vivo using worm motility assays, electron micrographic studies, worm faecal egg count and gene expression work. Our systematic reviews revealed significant knowledge gap on the anthelmintic activity of both foods warranting further work. Using larval and adult canine hookworm assays datepalm fruit and goat's milk significantly reduced worm motility resulting in death of worms in vitro. Electron microscopic studies revealed erosive worm cuticular damage exerted by both foods. Polyphenols were demonstrated to have mediated the anthelmintic effect of datepalm fruit while a synergy between polyphenols, milk enzymes and lactoferrin is proposed for goat's milk. Treatment of datepalm fruit extract and goat's milk to LS174T human intestinal cells incubated with IL-22 demonstrated insignificant mucin genes expression indicating no indirect anthelmintic activity of such foods. Treatment of datepalm fruit extract and goats milk in hookworm infected animal model resulted in only relative efficacy. Oral administration of both datepalm fruit and goat's milk to school children infected with *Trichuris trichiura* resulted in significant worm egg count reduction. Both datepalm fruit and goat's milk demonstrated significant in vitro and in vivo anthelmintic effects. The findings may be used as basis for the consumption of both foods as functional foods for the control of parasitic worm infection.

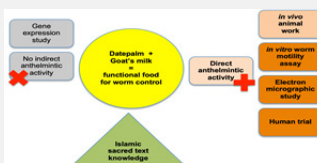


Fig 1. Anthelmintic effects of datepalm fruit and goat's milk evidence from various work pathways

### Biography

Dr. Fadlul Mansur is a senior lecturer in parasitology at Universiti Sains Islam Malaysia. He graduated in Medicine from Universiti Putra Malaysia and received graduate training in parasitology from Liverpool School of Tropical Medicine. He completed his PhD thesis from University of Nottingham. Over the last decade, he has made original contributions on the development of novel antiparasitic compounds from natural sources and has been conducting collaborative research, writing books as well as supervising graduates and medical students.