

**EPIDEMIOLOGY OF INTESTINAL PARASITES IN
A RAI COMMUNITY OF NUWAKOT DISTRICT**

A

Dissertation

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Degree of Master of Science in Microbiology
(ENVIRONMENTAL AND PUBLIC HEALTH)**

By

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RECOMMENDATION

This is to certify that **Mr. Raju Puri** has completed this dissertation work entitled “**EPIDEMIOLOGY OF INTESTINAL PARASITES IN A RAI COMMUNITY OF NUWAKOT DISTRICT**” as a partial fulfillment of M. Sc. Degree in Microbiology (Environment and Public Health) under my supervision. To my knowledge this work has not been submitted for any other degree.

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On the recommendation of **Prof. Dr. Anjana Singh** this dissertation work by **Mr. Raju Puri**, entitled “**EPIDEMIOLOGY OF INTESTINAL PARASITES IN A RAI COMMUNITY OF NUWAKOT DISTRICT**” has been approved for the examination and is submitted to Tribhuvan University in partial fulfillment of the requirements for degree of Master of Science in Microbiology (Environment and Public Health).

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.....

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ABSTRACT

Intestinal parasitosis is highly endemic in developing countries and usually implicates the children and pregnant women along with the people residing in filthy environment, urban slums and crowded areas. The dissertation was conducted from March to October 2012 to study the prevalence and distribution of intestinal parasites in a Rai community of Nuwakot district.

Soil, vegetables, water and fecal samples were collected, processed and studied to correlate the distribution pattern of the intestinal parasites. Sucrose floatation and saturated brine floatation techniques followed by direct smear were used for the processing of soil and vegetable samples respectively. The soil samples contamination rate was found to be 26.5% with the dominance of *Ascaris lumbricoides* followed by hookworm (*Ancylostoma duodenale* and *Necator americanus*). Soil samples from toilet vicinity and vegetable fields were the most contaminated soils. Vegetable samples were collected directly from the field. Of the 59 samples tested, 39% were found to be contaminated with the intestinal parasites. Helminthic preponderance was observed with the *Ascaris lumbricoides* and hookworm topping the list. *Giardia lamblia* and *Entamoeba coli* were also isolated from the vegetables. Leafy vegetables were the most contaminated vegetables which were followed by root vegetable. Water sample was processed following elution with saline after filtration. Only water samples from irrigation channel were found to be contaminated and the parasites detected were *Giardia lamblia*, *Ascaris lumbricoides* and *Trichuris trichiura*.

The intestinal parasitosis was highly prevalent in the community with the prevalence rate of 56.7%. Helminthic parasites superseded the protozoans. Protozoans were detected only from polyparasitic infection. Monoparasitism (70%) was common to polyparasitism (30%). *Trichuris trichiura* was found predominant among the community children. It was implicated in almost two-third of the cases. Unavailability of toilet facility in home imposed statistically significant ($P < 0.05$) risk of parasitic infection. Male children were the major victim of the intestinal parasites in comparison to female children and the difference was statistically significant ($P < 0.05$). A statistically significant relation was detected between the intestinal parasitic prevalence and fathers' involvement in agriculture ($P < 0.05$). The children of age group 4-8 years were most vulnerable to parasitic infection which was closely followed by age group 8-12 years. Besides, irregular footwear using habit, absence of antihelminthic drug uptake within last six months, poor hygiene, joint and family with more than five members were found to be favorable for the intestinal parasites. The contaminated environment and unhygienic habits were the major contributing factors to facilitate the distribution and prevalence of intestinal parasites in the community.

Key words: soil, vegetables, water, fecal sample, intestinal parasites, Rai community

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LIST OF ABBREVIATIONS

<i>A. lumbricoides</i>	<i>Ascaris lumbricoides</i>
<i>B. hominis</i>	<i>Blastocystis hominis</i>
BMI	Body Mass Index
CDC	Center for Disease Control and Prevention
DoHS	Department of Health Services
<i>E. coli</i>	<i>Entamoeba coli</i>
<i>E. histolytica</i>	<i>Entamoeba histolytica</i>
<i>E. vermicularis</i>	<i>Enterobius vermicularis</i>
<i>H. nana</i>	<i>Hymenolepis nana</i>
<i>S. stercoralis</i>	<i>Strongyloides stercoralis</i>
STH	Soil Transmitted Helminthes
<i>T. trichiura</i>	<i>Trichuris trichiura</i>
WHO	World Health Organization

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