Short communication

Observation on the Prevalence of Geohelminth Ova in Green Leaves/Vegetables from Different Markets of Dhaka City

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Abstract

A total of 180 samples of 10 types of vegetables were examined to determine the prevalence of geohelminth ova occurrence. Simple washing method with water was applied to the vegetables. Three species of geohelminth ova (*A. lumbricoides. T trichuara* and hookworms) were found in the collected vegetables. Maximum infestation were found in Spinach (28.58%) and Cauliflower (20%). Mint (21.43%) and Letuce (20%) were moderately infected. Ova of *A. lumbricoides* showed the highest (55.55%) prevalence, next the *T. trichura* (25.92%)

Key Words : Vegetables, Geohelminth Ova, Infection, Prevalence.

Introduction

The seasonal vegetables are the main nutrient sources in our daily menu. Amongst the varieties of vegetable: cabbage, cucumber, spinach, tomato, radish etc[1] farmers, in our country sometime use the untreated night soil in order to manure their crops and vegetable plants. Sewerage and sludge are often drained into such lands as fertilizers. These soil transmitted helminth ova passed through human stool to become highly infective after 2-3 weeks incubation inside the soil and can easily be transmitted to health individuals frequently enough by oro-faecal &/or intracutaneous route[2,3]. Reports from various studies on intestinal parasites, worldwide, specially from the tropoical countries and SEA regions showed that *A. lumbricoides, trichuris trichura* and hookworms are the top three commonly prevalent intestinal nematodes of major public health significance. These infection are often associated with diarrhoea in different age group population, which ultimately leads to metabolic disorder and deficiencies, hamper child growth and nutritional status [4].

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Thirty eight eggs of *Ascaris* per 100g of vegetable leaves and 0.6g of *Ascaris* eggs per 1000gm. of carrots have been found to be reported[2]. Bearing all these epidemiological findings and the said prevalence data that a significant proportion of helminthiasis can be transmitted to human beings by ingesting nematode ova along with the GLV. So, possible methods of vegetable washing treatment may be applied in terms of time consumption, cost-involvement, applicability and acceptabnolity to both our rural and urban communities[5,6]

Materials and Methods

The purpose of the study was to investigate the prevalence and incidence of different geohelminth ova in Cabbage, Cauli flower, Spinach, Carrots, Raddish, Calumber, Tomato, Corriander, Lettuce and Mint collected from purposively selected different markets (Karwanbazar, Kathalbagan, New market, Mirpur, etc.) of Dhaka city. An attempt was also taken to compare certain existing methods of treating green leafy vegetables to make them free from helminth ova.

A total of 180 samples of vegetables were examined. 500mg of each vegetables was taken separately in lebeled plastic container. The vegetables were immerged in 1000 ml. of distilled water and were kept for ten minutes. The immerged vegetables were removed from the distilled water and the water was kept for test for 15-25 minutes for setling down the sediments properly; ten minutes later, the water was discarded slowly from the top.

The sediments with water were stirred vigorously, then divided and separated into five to six glass jars. After 5 to 7 minutes, the top layers of water were discarded off from the jars and again kept in rest for five minutes.

Finally all these samples were processed for the Formal Ether Concentration (FEC) sedimentation method, and the sediments were examined under microscope for parasitological examination.

Results and Discussion

The overall prevalence of geohelminth ova presence in 180 samples of vegetables was 15.5%. Out of 180 samples were examined, 27 samples were found infected with soil transmitted geohelminth ova (Table 1). Maximum prevalence was recorded in the samples of Spinach (28..58%), among the rests, comparatively higher in Cauliflower (25%) Mint (21.43%) and Lettuce (20%).

Among the total positive cases in majority of the vegetables, specially the ova of geohelminths, *Ascaris lumbricoides* showed the maximum occurrence (51.85%). The eggs with ova of *Trichuris trichura* (25%92%) and hook worms (22.22%) were recorded (Table 2). The prevalence of geohelminth ova in Raddish (11.54%), Cabbage (12.5%) and Calumber (10%) were nearly similar.

Table 1. Prevalence of geohelminth ova in different vagetables

Item examined	No. of samples examined	No. of positive findings (+ova)	Prevalence
Cabbage	16	2	12.5.%
Cauliflower	16	4	25%
Spinach	14	4	28.58%
Carrots	14	2	14.295
Raddish	26	3	11.54/%
Calumber	20	2	10%
Tomato	20	1	5%
Corriander	20	2	10%
Lettuce	20	4	20%
Mint	14	3	21.50%
Total /Avg.	180	27	15.50%

Except Tomato, in other vegetables, double infection of any two, among these three species of geohelminth (*A. lumbricoides*, *T. trichura* and hookworm) ova were observed, where the ova of *A. lumbricoides* was common (Table 2).

The helminth infection directly and indirectly hamper the child's mental and physical growth and nutritional status.

Anwar et al.[1] worked on washing method of treating geen leafy vegetables. In their study, the vegetables were contaminated artificially by the ova of helminths and afterwards, the washing methods were applied. While, in the present study, the naturally contaminated vegetables were washed methodically and manually.

Table 2. Occurrence of different types of ova of geohelminths in different vegetables

Items of Vegetable	Different species of helminth ova occurred in no. of veg. samples			Total
Cabbage	1	1	0	2
Cauliflower	2	1	1	4
Spinach	2	1	1	4
Carrots	1	0	1	2
Raddish	2	1	0	3
Calumber	1	0	1	2
Tomato	1	0	0	1
Corriander	1	1	0	2
Lettuce	2	1	1	4
Mint	2	1	0	3
Total 180 samples	15 (55.55%)	7 (25.92%)	5 (18.51%)	27 (15.50%)

Sinnah[2] reported that more than 9% of the green leafy vegetables on an average were infected with soil transmitted helminth ova. They found highrst contamination (12%) in Coriander, followed by Lettuce (10.8% and Mint (3.4%) leaves. Microscopical investigation revealed that amongst all the helminth eggs recovered from vegetables, ova of *A. lumbricoides* were found predominantly prevalent (74%), *T. Trichura* (22%).

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