

ERBIL POLYTECHNIC UNIVERCITY

HEALTH TECHNICAL COLLEGE

MEDICAL LABORATORY TECHNOLOGY Dept.

**Subject:Ph.D Degree Science Proposal**

**Suggested title:**

 **Epidemiological study of pediculosis, Molecular Identification and Phylogenetic Evolutionary of *Pediculushumnuscapitis*and Its Symbionts Isolated Among Student in Primary Schools in Erbil, Iraq.**

**Prepared by:**

**Assistant Professor: Karwan SalloNajm Al-Marjan**

**Parasitologist**

**Email: Karwansn@epu.edu.iq**

**Supervised by:**

**Prof. Dr. Fouad Hussein Kamel**

**Introduction**

*Pediculushumanuscapitis*, is a worldwide in distribution, especially among primary schools children, deaf and blind persons [1]. *Pediculushumanus*, especially *P. humanuscapitis*, is still a crucial public health problem however, it is a low priority issue in public health [2]. In Europe, high rates can be found in almost all countries, from France to Germany, from Spain to Greece, from the Balkans to the United Kingdom and Poland [3]. Based of data which were collected by Ozlem*et al.*, [4] from 1982 till 2009, the infestation rate by *Pedeculushumanuscapitis*in Turkey were increased among primary and secondary schools students and teachers. In Iran during the years 2002-2003 the prevalence of head louse infestation in primary school students was increased and make a large problem in Iranshahr city [5] and this rate was decreased in 2009 among such sector in Fars province [6] then gradually infestation rate were increased again in 2012 among primary schools in Sanandaj city, Kurdistan Province, Iran [7].

**Research questions**

1. What is the main important epidemiological factors affecting the infection rate by this parasite?
2. What is the most suitable and accurate technique for the diagnosis of parasites?
3. What are the control strategies for theectoparasitic infection?
4. Is the genetic variation (mutation) in pediculus take place or not?

**Significance of the research**

1. Controlling of the health problems in the different sectors in our community.
2. Finding of this research may lead to further research in future.
3. The finding of this research may have beneficial effect to the health sector.
4. Preparation of suitable vaccine against pecuculussymbionts.

**Research Aims**

To control ectoparasiteparasitic infestsation in the different sectors in our community and using of new and more accurate technique in the diagnosis of parasite in addition to determination the most epidemiological factor affecting the prevalence rate of infestation by this parasite. Finding out the phylogenetic tree then genetic variation which leads to increases resistance of *pediculushumanuscapitis* against various antilice and preparation of the a propritae vaccine sagains parasite symbionts (bacteria)

**Research design**

This study is a (**prospective study**)

**Materials and methods**

**1-Epidemiological Study:**

Includes searching for the parasite among primary schools (in a total number of sample ranged 1300-1500students aged 6\_12 years old). Collected sample (lice collection with using of lice combe) suggest to transported to Erbil health technical college in a sterile container .

**2-Molecular Study:**

This include using of 28S rDNAsequence in molecular Analysis and its primer was designed previously by Mollaret*et al*. ( 2000). Steps of molecular analysis includes:

A-parasiteDNA isolation

Genomic DNA from *E. vermicularis* specimens is obtaining by employing extraction kit (Bioneer, AccuPrep Genomic DNA Extraction Kit, Catalog No. K- 3032, Korea)

B-PCR : using thermo cycler

C-Gel electrophoresis , gel pole

D-Sequencing. Using sequencer

E-Phylogeny Analysis. Using NCBI

**References**

[1] Hunter, J. A. and Barker S. C.; Susceptibility of head lice (*Pediculushumanuscapitis*) to pediculicides in Australia. Parasitol. Res., *90: 476–478.2003.*

[2] Takano-Lee, M.; John, D. E.; Bradley, A. M. and John, M. C. ; Transmission potential of the human head louse, *Pediculuscapitis*(Anoplura: Pediculidae). International J. of Dermatology *.5 (44): 811–816 .2005.*

[3] Sidoti, E. ;Bonura, F.; Paolini, G. and Tringali, G.;. A survey on knowledge and perceptions regarding head lice on a sample of teachers and students in primary schools of north and south of Italy. J. prev. med. hyg. , *50: 141-151.2009.*

[4] Ozlem, O.; Onur, H.; and Melike, Y. (2010). The Prevalence and Management of *Pediculushumanuscapitis*in Turkey ;: A Critical Perspective in Terms of Public Health. Public Health Nursing, Nursing Dep., Kocaeli School of Health, Kocaeli Univ., Kocaeli, Turkey. andKocaeli Univ. Medical Faculty, Kocaeli, Turkey. *24 (3):163-166. 1982-*2009.

[5] Salemi, J. A.; Shayeghi1, N.; Zeraati, H.; Akbarzadeh, K.; Basseri H.; Ebrahimi1, B. and Rafinejad, J. ; Some Aspects of Head Lice Infestation in Iranshahr Area (Southeast of Iran). Iranian J. Publ. Health.*32 ( 3): 60-63.2003.*

[6] Davarpanah, A. M.; Mehrabani, D.; Khademolhosseini, F.; Mokhtari, A.; Bakhtiari, H. and Neirami, R.; The prevalence of *Pediculuscapitis*among School Children in Fars Province, Southern Iran. Tehran Univ. of Medical Sciences Publication. Iranian J. Parasitol.*,4 (2): 48-53.2009.*

[7] Shemshad, V. A.; Shemshad, K.; Sayyadi, M.; Biglarian, A.;Vahabi, B. ;Sayyad, S. ;Shemshad, M. and Rafinejad, J.*; Tropical Biomedicine*. *29 (2): 207–211.2012*.