Natural Infection of Wobachia and Cardinium Bacteria among Phebotomus Papatasi the Main Vector for Zoonotic Cutaneous Leishmaniasis in Different Regions of Iran

Somaieh Soleimani*[1]; Parviz Parvizi[2]; Mohammadreza Zolfaghari[1]; Narmin Najafzadeh[3];

1- Department of Microbiology , Islamic Azad University ,Qom, Iran

2-Molecular Systematics Laboratory, Parasitology Department , Pasteur Institute of Iran. Tehran , Iran

3- Department of Microbiology, Fars Science and Research Branch, Islamic Azad University,Fars, Iran

soleimani.somaye65@gmail.com

Background & Objectives: Wolbachia and Cardinium bacteria are obligated intercellular bacteria from Rickettsiaceae and Flexibacteriaceae order which modifies the reproduction system of its hosts by cytoplasmic incompatibility phenotype to improve its transfer to the next generations. Recently the role of these bacteria in controlling of leishmania vectors has come to notion. There is no record of simultaneous infections of Wolbachia and Cardinium infection in *Phlebotomus papatasi* and the importance of this study is because of special phenotypes occurs in their hosts and the role they play in vector born diseases.

Methods: Sticky papers and CDC traps were used to sampling sandflies in rural areas of Iran. After identifying the sandflies by dissecting and mounting, their abdomens and thoraxes were extracted for DNA. General primers (81F/691R) and CLOF1/CLOR1 were used to detect wsp gene for the presence of Wolbachia and 16SrDNA for Cardinium bacteria. After sequencing, the data were analyzed by molecular software.

Results: Simultaneous infection of Wolbachia and Cardinium bacteria were found. Only sandflies were infected by Cardinium but Wolbachiainfection was high, infection rates among male and female Phlebotomus papatasi for Wolbachia bacteria were a little different and had more difference among geographical locations.

Conclusion: Because of the difficulty in culturing wolbachia and Cardinium bacteria, their detection is possible only by using molecular Methods. The Cytoplasmic Incompatibility (CI) role and other characters of these bacteria among insects, suggests using of their genome as transgenes and can be considered as biological control agents.

Keywords: Wolbachia, Cardinium; *Phlebotomus papatasi;*Cytoplasmic Incompatibility