

Significant Increase of *Mycobacterium bovis* Growth Rate with Irradiation of 630-640nm, 5mW Power, Low Level Helium-Neon Laser

Peyman Zare¹; Mehdi Azari*²; Shahrokh Paktinat²; Hamed Behniafar²; Alireza Makhlooghi²; Razagh Mahmoudi²; Ebrahim Safari³

1- Department of Pathobiology, Faculty of Veterinary Medicine, University of Tabriz, Tabriz, Iran

2- Department of Food Hygiene and Aquatics, Faculty of Veterinary Medicine, University of Tabriz, Tabriz, Iran

3- Department of Atomic and Molecular sciences, Faculty of Physics, University of Tabriz, Tabriz, Iran

peymanzare33@gmail.com

Background & Objectives: Lasers for optical beam systems are able, single-color and high intensity source of produce and are commonly used in biophysics. Lasers are used in laser surgery and in cancer treatment. Also laser can stimulate cell proliferation.

Methods: To determine the effect of 630-640nm, 5mW power, low level Helium-Neon laser irradiation on *Mycobacterium bovis* growth rate, bacterial cultures in Lowenstein-Jensen medium in 3 groups with treatment (irradiation) and control (without irradiation) tubes were evaluated in a 4-week period.

Results: Only in the group with 225 seconds irradiation significant increase in bacterial growth in treatment tubes was observed and bacterial colonies were obvious in 15 days (compared to 32 days in control tubes).

Conclusion: This finding can be used to design systems to reduce the incubation period of *Mycobacterium bovis* cultures in diagnostic and research laboratories.

Keywords: Helium-Neon; Laser; *Mycobacterium bovis*

