ABSTRACT
In the last three decades, the laser had significance in medicine and industry, the soft laser is used in therapy of different disease, viral infection, bacterial infection that was painful in the oral cavity. The aim of this study is to determine the genetic effect of low level laser (LLL) on lymphocyte. As whole blood was taken from 30 healthy volunteers and irradiated with both pulse and a continuous mode of the same wavelength of laser of 650 nm output power of 25mw, at different duration time(15, 20, 25, 30min) in comparison with control (no irradiation). The results showed no differences between both groups in chromosomes number or and chromosome shape. In conclusion, soft laser with this wavelength was safe and it can be used in treatment of oral disease or wound healing.

KEY WORDS: lymphocyte, laser, chromosome changes, genetic changes.

INTRODUCTION
Laser recently becomes extremely important both in medicine and sciences. Soft laser have been used to achieve very precise therapeutic effects, such as bio stimulating cells and for anti-inflammatory effects[1,2]. Cellbio stimulation provide by soft laser is reflected throughout the formation of the following mechanisms, reduction of cellular cariokynesis time which leads to faster wound healing; the increase of cellular ATP, stimulation of intra and extra fluid ions. So that the potential cell energy is increased which supports the bipolarization and then helps cellular exchange stimulation of specific cellular elements, depending on their absorption potentials, regarding some wavelength[3]. All of these mechanisms of stimulation and regulation produce effects which favor wound healing and swelling reduction that leads to total improvement of both arteriovenal and lymphatic nutrition and microcirculation[4].

RESULTS & DISCUSSION
This study showed that after irradiation of whole blood there is no changes in chromosomes number or and chromosome breadless or any infringements of chromosomes less than what is recognized that chromosome loss and malsegregation of chromosomes
Changes on lymphocyte by using low level laser (non-disjunction) are important event in cancer and ageing and that these are probably cause by defect in the spindle Centro meter or as consequence of under condensation of chromosome structure before metaphase\(^{(7)}\). The same number and shape in both samples are appearing as show in (Fig.1). Furthermore, when it compared with the control they show the same number (Fig-2). From this counting it was noticed that the no. of chromosome in the control and each sample group is the same. In the method (MNI) of micronuclei with the above dose remains fixed, we can say with safe dose (Fig.1 - Fig.2).

Many theories have been postulated about the mechanism of action for low level laser especially about the exact mechanism of action and the physiological changes occurring at the cellular level. According to Russian researchers, DNA replication emits light at 658nm. Since this is very close to the Wavelength of the He-Ne laser light, it is postulated that laser may accelerate DNA replication via photo stimulation Laser irradiation at this frequency is said to be non-mutagenic since it is not in the range to alter the genetic program by affecting chromosomal ultra-structure. The latter is more likely to occur at Ultra violet light irradiation at 300-400nm. The method of using soft laser in wound healing and pain relief has not got clarified complete but Escola\(^{(5)}\) have reported that soft laser with the above specification with these duration time had no effect on genetic material also there is no changes in nuclei no.

According to the results that obtained in this work, the soft laser with this wavelength was safe and it is recommended for treating oral disease or wound healing for herpes simplex labial therapy which is safety within the above dose, also we conclude that this type of laser cannot be carcinogenic and or one of causes of chromosome abnormalities.

![Figure 1: Chromosome appearance after using low level laser (LLL)](image1)

![Figure 2: Chromosome appearance of control group (no laser treatment)](image2)
REFERENCES


